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AMERICAN BEE JOURNAL

AUGUST 1923 $1.50 A YEAR

QUEEN IN THE ACT OF LAYING. Photo by W. H. White.

REQUEENING ARTICLES—Newman I. Lyle, Allen Latham, J. H. Merrill and E. M. Cole.

SOME WHYS OF BEE BEHAVIOR—Wallace Park.

ADVANTAGES OF DOUBLE-WALLED HIVES—J. E. Crane.

USING WANT ADS TO SELL HONEY—John T. Bartlett.

Real Three Colored Lithographed Pails

Here is something that the forward beekeeper, who wants to market his honey right, will appreciate. After several months' planning we are able to offer our friends and customers something especially distinctive in the "HONEYWARE" lithographed pails. These "HONEYWARE" pails are not a slipshod, overnight creation, but a real pail in RED, GREEN and GOLD, with the name of the producer in BLACK when ordered in quantities.

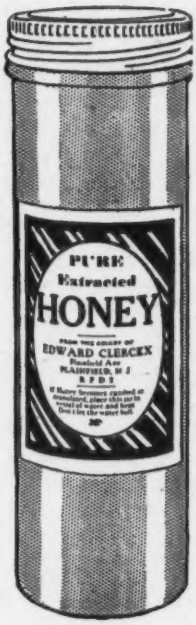
They are sanitary lacquered inside, making them rust-proof, both inside and out. Honey may be kept for a long time in them without any danger of discoloration of the product, or rusting of the container.

You should get our prices and investigate before placing your order for your season's requirement in the package line. Furnished in 2½-lb., 5-lb. and 10-lb. sizes; friction tops.

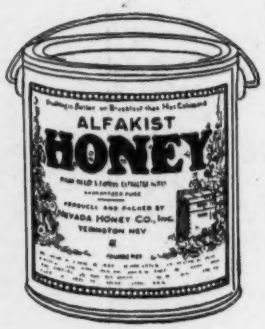
PLAIN TIN HONEY PACKAGES

As usual, we handle a full line of friction-top pails in plain tin at prices that will save you money. And you can get labels for these pails that will strike the eye.

Packed in corrugated cases for shipment, assuring their reaching you in perfect and clean condition.



The FIVE GALLON cans we send out are in strong cases with hand-holds that will stand shipment without breakage and save freight claims.

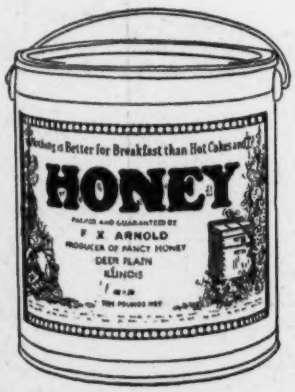


GLASS JARS

We handle the tall, attractive 20-ounce jars in two dozen reshipping cases, as well as the 6-ounce jelly glasses in the same size and style of container.

CORRUGATED COMB-HONEY SHIPPING CASES

Last year was our first in selling the "Crane" corrugated comb-honey shipping case. We sold so many of them and they were so well liked that we expect to sell several cars of them this year. They transport comb-honey well and are a great saving of expense.



Made in 24-lb. sizes for regular 4¼x1⅞, as well as for 4¼x1½ and 4x5 sections.

COMB HONEY CARTONS

We have them. They go well, too, with the corrugated shipping case.

Remember the "Honeyware" Lithographed Pails. We cannot recommend them too highly for your use. Write for folder and complete list of honey containers, advertising literature and other goods

DADANT & SONS, HAMILTON, ILLINOIS

FOR GREATER SUCCESS YOU SHOULD BUY

WOODMAN INNER OVERCOAT HIVES

Protected Bees Work Day and Night. Protection means a lot to the successful wintering and springing of bees, and in localities subject to cool nights, the greatest success in honey production, especially comb honey. Maintaining a temperature of 98 degrees permits comb building to go on both day and night. Supers are protected by outside rims.

Larger Honey Crops Are Assured. The bees are enabled to rear brood earlier in the spring, with no danger of chilled brood on account of cold snaps. One bee in March is worth one hundred in July. The early bees produce the early swarms, that get the large honey crops. Therein lies success or failure.

You will Practically Eliminate Winter Losses. With your colonies in normal condition (that is, with plenty of good stores, a young queen and young bees, with ample protection), you will be able to winter practically 100 per cent. The consistently successful, start not later than August 1st, to get their bees in condition for the next year's honey flow.

The Inner Overcoat Hive will Last a Lifetime, as the outer hive walls are the same thickness as in the single-wall hive. In other words, **Woodman** Inner Overcoat Hives are a **lifetime investment—not an expense.**

Out-of-Door Wintered Bees Have Many Advantages over cellar-wintered bees. They do not spring-dwindle, and are stronger at the opening of honey flow.

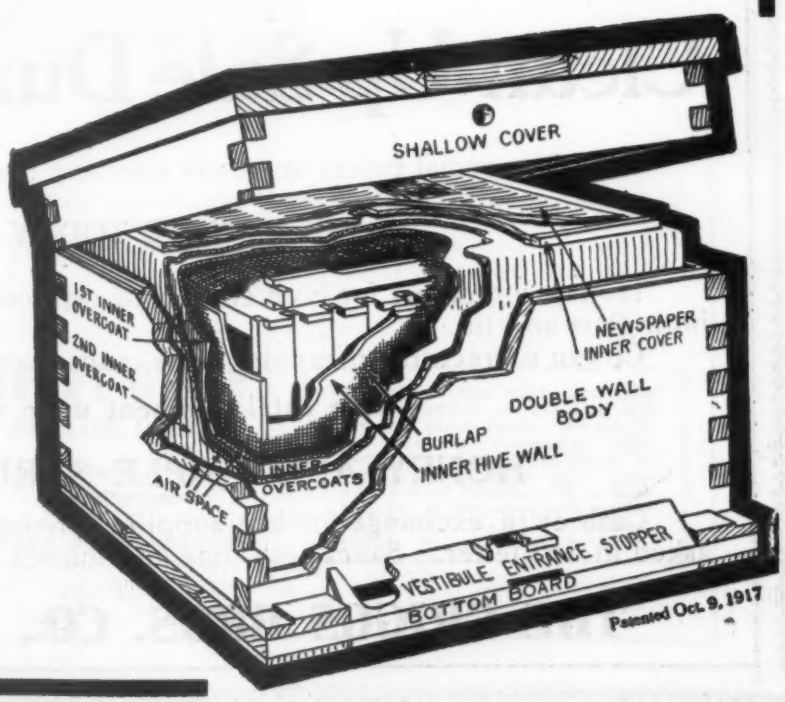
Insures Close-up Protection. A person may have any amount of blankets fastened up to the wall of his room and still freeze to death if left in the center of the room without **close-up protection or insulation. The close-up protection in the Inner Overcoat Hive** is what does the trick.

HOW TO USE

PROTECTION HIVES

When the bees are to be prepared for winter, remove the cleats which close up the insulating space. Then telescope one or more bottomless corrugated paper box insulators between inner and outer hive walls. Spread a piece of burlap or sacking material over the hive so that it will be carried down with the Inner Overcoats in telescoping them over the inner hive wall, having the effect of wrapping the brood nest in a blanket. These Inner Overcoats, with their air spaces, afford more protection than several inches of ordinary packing materials, and this is all secured in an insulating space of about one inch.

Special circular for the asking. The present price of $25 for five hives 10 standard Hoffman frames, $27.50 for the Jumbo or Dadant frame depth.



A. G. WOODMAN COMPANY

240 Scribner Ave. N. W.

SOLE MAKERS

GRAND RAPIDS, MICH.

U. S. A.

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SCOTT QUEENS ARE GOOD QUEENS

They sure do get the Honey! One customer writes: "Dear Mr. Scott: Got a queen from you last fall and her colony filled five supers this summer (1922). Yours truly." (Name on request). **They will do as well for you.**

Untested queens, golden or three-banded, 1, $1.25; 6, $7.00; doz., $13. Ready June 1. Pure mating and safe arrival guaranteed. Send for circular.

THE SCOTT APIARIES, LaGrange, Ind.

IOWA QUEENS

Italian Queens of SUPERIOR Quality.

My queens are reared in strong cell-building colonies, are mated in big, strong nuclei and are first-class in every way.

1923 Prices:

Untested---- 1, $1.25; 10 or more, $1.15.
Select Untested--1, $1.60; 10 or more, $1.50.
Tested ---- 1,$2.00; 10 or more, $1.90.

Will begin shipping about the 1st of June. Queens will be shipped in large long-distance cages, and I personally see that every queen is laying and in good shape when caged.

Pure mating, safe arrival and satisfaction guaranteed or your money back.

Place your order and get service and Quality.

ORIN STANLEY
Valley Apiaries, Lamoni, Iowa.

"GRIGGS SAVES YOU FREIGHT"

TOLEDO, OHIO

Clean-Up Sale During August

Send for special prices on goods you may need for next season's use.

WRITE TODAY

Honey containers for both comb and extracted honey. All kinds and sizes, both glass and tin.

Cowan extractors, uncapping cans, and storage tanks, at bargain prices.

Free catalogue sent upon request

HONEY AND MAPLE SYRUP WANTED

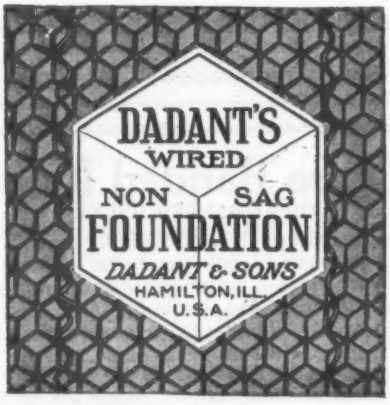
Cash or in exchange for bee supplies. Send sample and state what price asked in first letter. Saves both time and money.

THE GRIGGS BROS. CO., Toledo, Ohio

Follow Langstroth's Advice

"Let us compel every minute to yield the greatest possible result by using the most ingenious machinery."

Dadant's Wired Foundation gives the greatest possible results in good combs



PATENTED

When you plan your foundation buying consider what this means to you.

Dadant's Wired Foundation and slotted bottom-bar frames are sold by all distributors of Lewis "Beeware" and Dadant's Foundation. Send them your orders.

DADANT & SONS
HAMILTON, ILLINOIS

Makers of Dadant's Famous Foundations

WIRED—PLAIN—SURPLUS

BEESWAX—We need constantly large quantities of beeswax and pay good prices for it. We cannot use mixtures containing other waxes, as it spoils the purity of our product. Ship pure beeswax to us at Hamilton, Ill, or Keokuk, Ia., or drop us a card and we will quote f. o. b. here or your station, as you wish.

HONEY CANS HONEY CASES GLASS JARS

In Small Lots, Wholesale Lots, Carlots

FRICTION TOP CANS and PAILS—(All have full-size openings and are made in exact sizes to hold 2½ lbs., 5 lbs. and 10 lbs., net, of honey. Especially suitable for all-around-the-can labels).

FIVE-GALLON SQUARE CANS—(Made of 107 lb. tinplate, fitted with large 2-inch screw caps).

TALL, SLENDER, STRAIGHT SIDE GLASS JARS—(Made of clear flint glass and packed in re-shipping cases of two dozen each).

STRONG PINE SHIPPING CASES—(A complete stock of all sizes to hold 24 2½-lb, 12 5-lb, 6 10-lb or 2 5-gal. tins).

GLASS FRONT COMB HONEY SHIPPING CASES—(Furnished complete with glass, corrugated paper pads and nails. Neatly made from clear, soft white pine).

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SUPERIOR HONEY COMPANY, Ogden, Utah

"The Manufacturers of 'SUPERIOR' Comb Foundation"

Branches at Idaho Falls, Idaho, and Riverside, Calif.

Nordan's Three Banded Italian Queens

(THREE-BANDED ONLY)

Mr. Beekeeper: Ten years ago I would gladly have given one thousand dollars for one queen immune to bee paralysis. Today I am offering you queens that are guaranteed to be absolutely immune to bee paralysis. They have been tried all over the United States and Canada and have proven this fact themselves. They are surpassed by none for honey and are gentle and not given to swarming, as some strains are.

Prices on Queens as follows:

Untested	each $ .75, 12 $ 8.40, 100 $ 70.00
Select untested	each $ .90, 12 $10.00, 100 $ 80.00
Select tested	each $1.50, 12 $16.20, 100 $125.00

Try them and be convinced that there is a strain of bees immune to bee paralysis. I guarantee all queens to be purely mated.

Safe arrival and satisfaction both in the United States and Canada is also guaranteed.

M. S. NORDAN, MATHEWS, ALA.

GLASS AND TIN HONEY CONTAINERS

Both Glass and Tin Can Manufacturers have advanced prices. We are making no change in our prices.

2½-lb Cans, Crates of 100	$4.00
5-lb. Pails (with handles), Crates of 100	7.00
10-lb. Pails (with handles) Crates of 50	5.25
60-lb. Tins, 2 per case, new, per case	1.00

WHITE FLINT GLASS with gold lacquered wax lined caps

8-oz. honey capacity; carton of 3 doz.	$1.50
16-oz. honey capacity; carton of 2 doz.	1.20
3-lb. honey capacity (quart); carton of 1 doz.	.90

HOFFMAN & HAUCK, Inc., Woodhaven, New York

A SUPERIOR QUALITY AT LESS COST

SUPPLIES

A SUPERIOR QUALITY AT LESS COST

(MADE BY THE DIAMOND MATCH CO.)

We offer the following items from our regular stock of high quality bee supplies, at special prices to apply on orders received by us during August.

SECTIONS

	500	1000
4¼x4¼x1⅞ in. two-beeway, A grade	$6.00	$11.50
4¼x4¼x1⅞ in. two-beeway, B grade	5.50	10.50
4x5x1⅜ in. plain, A grade	5.50	10.50

No less than 500 at these special prices.

HIVES, HIVE BODIES, FRAMES, SUPERS, ETC.

10-fr. Jumbo Hives with metal cover, inner cover, Jumbo frames and all inside fixtures ..... $14.00 per crate of 5

10-fr. Jumbo Hive Bodies, complete with Jumbo frames, nails, rabbets, etc. ..... $6.50 per crate of 5

Standard Hoffman Frames ..... $5.25 per 100; $25.00 per 500

10-fr. Shallow Extracting Supers, complete with frames, nails, rabbets, etc. ..... $4.00 per crate of 5

10-fr. No. 1 style Comb Supers for 4¼x4¼x1⅞ in. sections, complete with section holders, separators, follower boards, springs, tins and nails ..... $4.00 per crate of 5

10-fr. No. 3 style Comb Supers for 4x5x1⅜ in. sections, complete with section holders, fence separators, springs, tins and nails ..... $5.50 per crate of 5

OUR HIGH GRADE DIAMOND BRAND FOUNDATION

Medium Brood	5 lbs., 60c per lb.	25 lbs. or more, 57c per lb.
Thin Super	5 lbs., 65c per lb.	25 lbs. or more, 60c per lb.

These Prices are SPECIAL for the month of August Only

HOFFMAN & HAUCK, Inc., Woodhaven, N. Y.

ITALIAN QUEENS—Three Banded and Goldens

After rearing queens in a commercial way for 12 years, and on a large scale, we believe we can offer as good queens as can be had. Our breeder has reared over 110,000 queens, and beekeepers who wanted good stock have bought them and got good results from them.

We use only the best breeding stock, and use only the best methods in rearing our queens. Send us your order and get good value for your money. Everything we sell must please or we refund your money.

PRICES OF QUEENS:

Untested Queens:		Tested Queens:	
1 Queen	$ .75	1 Queen	$ 1.50
12 Queens	9.00	12 Queens	17.00
100 Queens	65.00	Good Breeders, each	5.00
1000 Queens	600.00		

Golden Queens are reared five miles from other queen yard. Let us fill your order. We are mailing Queens promptly.

THE CITRONELLE APIARIES, Citronelle, Alabama

THE EYES OF BEEDOM

Are turned upon MACK and his Queen Rearing Achievements. Testimonials from all over U. S. A. harmonize with the key-note, "The Best Yet." If you have never tried them you still have a pleasant surprise awaiting you. GENTLENESS alone is worth the price we ask and you get all the other GOOD QUALITIES thrown in. Just remember there is no other one thing connected with beekeeping that will bring you greater returns than to requeen NOW. Our Queens and our Service will make you a more than satisfied customer. For more complete information send for Free Catalog.

Prices:

	1 to 49	50 to 99	100 up
Untested	$1.00	$ .95	$ .90
Select untested	1.25	1.20	1.15
Select tested	2.00	1.85	1.75

Capacity—1000 of these GOOD QUEENS a month.

HERMAN McCONNELL, Robinson, Ill.

NOW IS THE TIME TO BUY

Pails, Shipping Cases

5 LB. FRICTION TOP PAILS, PER 100 ..... $ 6.90

10 LB. FRICTION TOP PAILS, PER 100 ..... 10.25

SINGLE TIER SHIPPING CASES FOR 4¼x4¼x1⅞ SECTIONS, HOLDING 24 SECTIONS, WITH GLASS, EACH ..... 39 CTS.

SAME AS ABOVE, WITHOUT GLASS ..... 36 CTS.

WE ALWAYS BUY HONEY. SEND SAMPLES.

Ship your Old Comb and Beeswax. Highest market price.

The Fred W. Muth Co.

"THE BUSY BEE MEN"

CINCINNATI, OHIO

BREEDING BETTER BEES

Mr. J. W. Powell, of Mesilla Park, New Mexico, writes that he is interested in the line breeding of bees on a plan somewhat similar to that commonly practiced by leading poultry men. He is anxious to learn whether any attention has been given to breeding on a scientific basis and if so, with what results. Mr. Powell has given the matter a limited trial and the results obtained have been sufficient to encourage him to follow the matter further.

He bought two breeding queens from two of the best strains which he could find and mated the young queens which were the offspring of one of these strains with drones from the other. In such a country as New Mexico, with its vast expanse of unoccupied country it is easy to establish mating stations where the only drones within reach are reared from selected queens. From the offspring of this mating he selected the best queens and started breeding in direct line, mating back to drones of the same strain. He now has queens of the 12th generation in his hives and they are proving much superior to the queens in his other yards. He reports that three yards with the in-bred queens had an average of about forty pounds of honey in the supers on May 29th, while the other ten yards had an average of less than ten pounds in the supers. He expects to continue along the same lines until he has reached the 20th generation.

This is a field which has been neglected entirely too long by the beekeeper. There is no longer any room for question that it is possible to greatly improve the stock of bees by careful breeding. The time and attention necessary will be largely repaid.

England's Net Weight Law

The beekeepers of England have up in Parliament a law similar to that suggested for Michigan. They desire all honey to be labeled with the net weight and country of origin. The contention of the beekeeper is there that it will not only be desirable to have the large packages so labeled when imported, but that the parties who repack this honey in smaller jars should be forced to so label these jars that the honey contained in them may definitely be branded as imported or of home production.

Try It

A news item states that if rhubarb is baked in a covered dish, the flavor is preserved which is lost in open-kettle cooking. Honey used in place of sugar gives a delicious dish.

WHEN YOU COME to Madison, Wisconsin, August 13 to 18, 1923, to attend the Wisconsin Beekeepers Chautauqua and the DR. C. C. MILLER MEMORIAL MEETING,

plan to visit the home of "Beeware," only 42 miles away, conveniently reached by rail or state highway. G. B. Lewis Company, Watertown, Wisconsin.

BEFORE YOU GO

ROOT QUALITY QUEENS

At Reduced Prices in Quantity Lots

Known the World Over as the Best

AUGUST

The month when you should requeen your apiary

ORDER NOW

	1 to 9	10 to 24	25 to 49	50 to 99	100 or over
Untested	$1.50 ea.	$1.25 ea.	$1.10 ea.	$1.00 ea.	$ .90 ea.
Sel. Untested	2.00 ea.	1.70 ea.	1.55 ea.	1.45 ea.	1.35 ea.
Tested	2.50 ea.	2.10 ea.	2.00 ea.	1.85 ea.	1.75 ea.
Sel. Tested	3.00 ea.	2.50 ea.	2.40 ea.	2.25 ea.	2.00 ea.

THE A. I. ROOT COMPANY,

West Side Station, Medina, Ohio

You can have cash for your wax and old combs or cappings at the market price, or we allow a little more in exchange for supplies

Write for our terms and prices

"falcon" Supplies, Queens, Foundation

Booklet, "Simplified Beekeeping for Beginners" free

Write for catalog

W. T. FALCONER MFG. COMPANY, Falconer, (NEAR JAMESTOWN) N. Y., U. S. A.

"Where the BEST Beehives come from"

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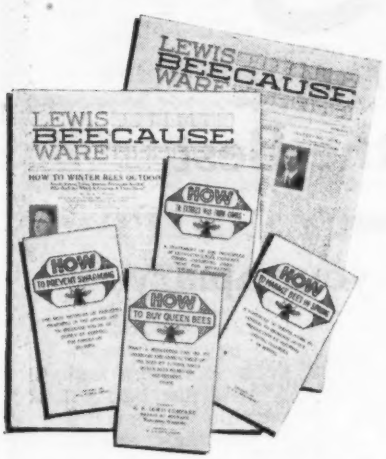
49 YEARS FOR PROGRESS IN BEEKEEPING — *No. 8*

WIDER KNOWLEDGE
of Profitable Beekeeping Methods



If you keep bees, you can have your name put on the list for our quarterly "Beecause" without charge in sending your initial order. (Sample free). Our 21 "How" books cover the problems of beekeeping authoritatively. Sample booklet free—extra copies 5c each. Check those that interest you and write us today.

"How to Use an Observation Hive."
"How to Care for Package Bees."
"How to Extract Wax from Combs."
"How to Manage Bees in Spring."
"How to Control Swarming."
"How to Buy Queen Bees."
"How to Start Beekeeping."
"How to Locate an Apiary."
"How to Feed Bees."
"How to Transfer Bees."
"How to Care for Nuclei."
"How to Unite Bees."
"How to Winter Bees Outdoors."
"How to Use Comb Foundation."
"How to Organize Beekeepers."
"How to Make Increase."
"How to Control Wax Worms."
"How to Produce Section Comb Honey."
"How to Manage Bees in Fall."
"How to Remove Bees from Trees."
"How to Produce Extracted Honey."

FOR half a century the Lewis name has been identified with everything progressive in beekeeping.

Immense strides have been made in beekeeping during the last ten years, largely due to the study of bee behavior and the application of better beekeeping methods through the work of the U. S. Bee Culture Laboratory, Washington, D. C.

Recognizing the value of this scientific study, the G. B. Lewis Company employed two of these specialists, trained in government methods of observation and honey production. Through our reputation as manufacturers of the quality line of bee supplies, we have also been able to ally with us a remarkable number of the most progressive and experienced beekeepers in the country, both in our own organization and among our dealers.

As a result, a great fund of experience, gained by practical and profitable beekeeping and by government visits to thousands of beekeepers and hundreds of bee culture meetings, has been accumulated and is made available to all beekeepers through our 21 "How" booklets on bee culture, our quarterly "Beecause" and the question-and-answer work of our service department.

Hundreds of thousands of these valuable booklets have been distributed by us to the beekeepers of America. Through us or our dealers, these booklets are always available to you. Remember, further, that we are deeply interested in the progress of beekeeping—consult our service department on any problem of profitable honey production. Use Lewis Quality Beeware and *assure yourself the best beekeeping facilities.*

BEE HIVES AND APIARIAN EQUIPMENT
BEWARE
WHERE YOU BUY YOUR
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AMERICAN BEE JOURNAL

VOL. LXIII —NO. 8 HAMILTON, ILL., AUGUST, 1923 MONTHLY, $1.50 A YEAR

REQUEENING BLACK COLONIES BY THE IOWA METHOD

By Newman I. Lyle

IN surveying the various methods of requeening one is struck by the fact that less progress has been made in shortening this work than in any other phase of beekeeping.

In extracting we have larger extractors and recently machines have been placed on the market that speed up the work to double time with no increase in size.

Hives are much more easily manipulated than formerly, but one of the greatest tasks of all, requeening, is done not one whit faster in these progressive times than in the past.

We might say why requeen? That is a question easily answered. First, we should weed out all unprofitable queens whether black, hybrid, or Italian. This can only be determined by the work the queen does when she lays unevenly, placing eggs in a hit or miss manner, next to sealed brood, developing larva, or open honey without any regard to empty cells near the place where she has been laying. If she skips about as if distracted and did not know her own mind, she should be replaced with a young, vigorous Italian queen of a good strain, either raised by the beekeeper or secured from some reliable breeder.

Much has been said about black or hybrid queens being hard to find, some going so far as to say it is almost an impossibility, and in many cases the beekeeper being forced to give up and call it a bad job.

If a few of the fundamentals of bee behavior are observed the work can be cut down to an average of less than 10 minutes per colony. One of the first laws of bee behavior is that the bees being creatures of instinct, **always do exactly the same thing, in exactly the same way, when conditions are in all ways exactly the same.**

Black bees are very nervous and, when disturbed by opening the hive, run helter-skelter in an aimless manner. This very fact makes them the easiest bees to transfer from box hive equipment to modern hives by drumming them up into the new hive, or a box of handy size if the old box hive is of bad size, dumping them out of the temporary box into the new hive on the old location.

People experienced in beekeeping know that bees when completely demoralized seldom sting. This is often made use of in the extension work of Iowa when it is necessary to handle mean colonies, especially if weather conditions are bad.

While trying out an adaptation of the above as advocated by E. M. Cole, of Audubon, Iowa, we stumbled onto what has been called the Iowa Method of Requeening.

The day was hot and sultry. A demonstration apiary at Audubon was handled in the regular way in the forenoon, the queens were found and caught in the usual manner and new queens introduced.

In the afternoon a drive was made to the demonstration apiary near Kimbalton, Iowa. Just as we arrived a severe rainstorm came up and it was necessary to wait till this was over before requeening was attempted. The bees were very cross and Mr. Cole suggested that we drum the hives, smoking them heavily the while, in order to quiet the bees. This was done and, to our delight, we found all the queens had run up against the excluders on the Demareed colonies and were trying to follow the bees through into the supers. As they could not get through the excluders, all that it was necessary for us to do was to pick the old queen off the excluder, take out a frame in the brood nest and introduce the new queen.

Place a queen excluder over the hive and on this place hive body with frames for bees to cluster on.

Drum on sides of the hive and smoke at the entrance.

The photographs shown illustrate the method in detail. The following discussion will no doubt be of value.

The first step in requeening a colony in a single body is to take off the cover and place a queen excluder on the brood chamber, then place on this a hive body fitted with either a few or a full set of drawn combs for the bees to cluster on. Have the smoker going strong, smoke the entrance heavily and drum the hive on both sides at the same time. Do this until the bees start to roaring. Drum and smoke for perhaps a half minute, wait another half minute and drum for another minute or two, using smoke a little at a time, starting them one after another and making the rounds about three times in order to speed up without hurrying the process. The drumming and smoking will cause the bees to run up. They will pass through the excluder into the empty body. The queen will be found on the lower side of the excluder trying to get through. She can be easily picked off and killed, as shown in picture 2. In requeening a Demareed colony simply drum and smoke as with the other colony. The bees will pass into the supers and the queen will remain below.

In this case, however, we must be sure to always loosen the supers before we start drumming and smoking, loosening the super next to the brood chamber, below the excluder, so it can be tipped back with queen on it and queen easily picked off. If supers are not loosened before drumming and smoking, the jar of doing so is liable to scare the queen and cause her to run back into the hive. Where this is the case the colony may be drummed again or gone through in the regular way. This will now be very little trouble, as there will be few bees with the queen and she is then easily located. This also applies to the case where the queen will not go up but huddles with some bees in a back corner of the hive; or you may shove the body ahead on the bottom board, smoke the cluster at the back through the crack thus made, and drum some more. The queen and bees will usually run right up against the excluder. We have a record of **5 colonies** requeened in **15 minutes,** an average of **3 minutes** on Demareed colonies. After the old queen is caught she should be killed and the body given a decent burial by digging with the hive tool and burying the queen in it. Some cremate her by putting her body in the smoker. The idea of doing away with the corpse may seem queer to some, but it is very important, for when the dead queen is left on the ground a cluster of bees form on her and stay there for a long time.

A push-in cage, or the honey method, may be used in actual introduction, but as most people use the shipping cage itself it will be best to describe what we consider the most satisfactory method of its use.

A frame from the center of the brood nest is taken out. This must contain a comb well filled with brood clear to bottom edge of comb. A frame should be selected that does not have the brood comb built clear to the bottom bar. The queen cage is laid on the bottom bar with the screen up. The comb should be bruised to allow the cage to fit in this space. This is a help, as the crushed brood smears up the cage and helps give the queen the scent of the hive. The bees will cluster around the cage because it is against the brood and also to clean up the mess from the bruised comb.

There are a few things to keep in mind. First: Loosen supers before you start drumming. The queen excluder should be left sticking to the lower super and loosened from the brood chamber itself.

Second: Have plenty of smoke available; use enough to make the bees roar, but not run out of the entrance. Use heavy clubs for the drumming and drum with slow, jarring strokes heavy enough to shake the hive. Dont hurry the process, as it is fast enough in itself. Don't give up if you fail on the first few colonies. It will work fine after you get the hang of it.

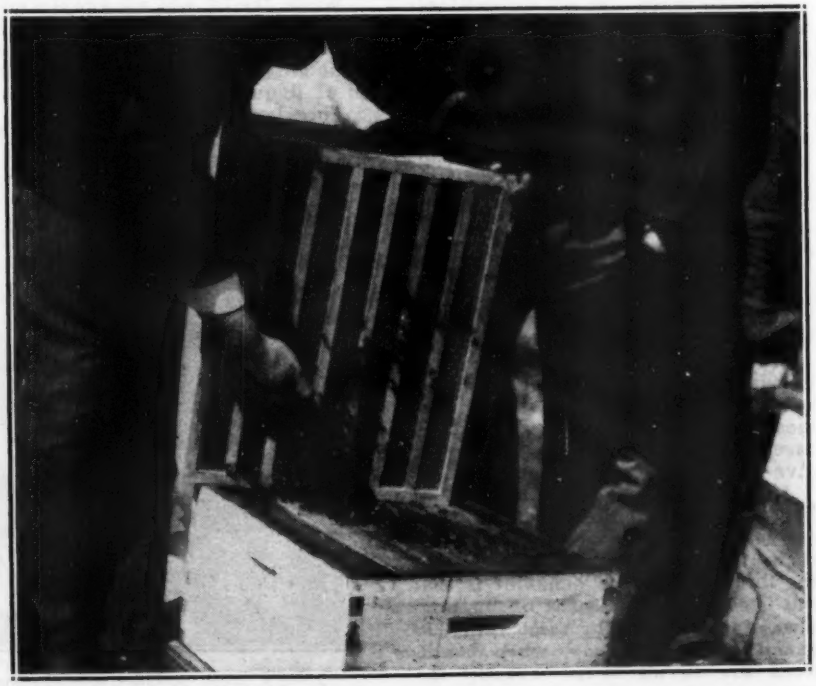
Last of all, requeen with good queens, always!

This will often work with Italians if we use plenty of smoke and take more time in drumming.

ARTHUR C. MILLER

By Josephine Morse.

There never was a better friend or a more generous one, than Arthur C. Miller. He was a man with a very scientific mind and a keen, rapidly working brain. This highly developed mentality was accompanied by a very warm-hearted nature and a fine sensibility to things of the spirit.



The queen will be found on lower side of queen excluder trying to get through.

In his beekeeping he was not orthodox but, though an iconoclast to some degree, he also was constructive; and if he pulled down, he built up again—and better. All beekeepers, worthy to be so called, know his name and are indebted to him. They are indebted to him principally for his long interest in the honeybee, resulting in valuable contributions to knowledge of bee behavior and to certain specific methods in connection with beekeeping manipulation; also to his ever ready help and inspiration to younger beekeepers.

In spite of a succession of shocks and severe illnesses during the last few years, which might easily have made him a complaining and self-centered invalid, he kept up his regular work in the bank with a most inspiring happiness of sprit and unconquerable zest in life. Particularly pleasant did he find the free afternoons spent in the country with his bees. He enjoyed living and enjoyed his friends and their correspondence. Many a troubled friend has been helped by his warm interest and kind advice.

While we all regret the sudden ending of his life here with us on earth, we must bear witness gladly and fully to the respect, admiration and love we felt for him. Let us hope that he may have had some slight realization of these our feeling during his lifetime.

South Lancaster, Mass.

ARTHUR COLBURN MILLER

By Allen Latham.

In the death of Arthur C. Miller, so well known to the readers of the Journal, we lose one of the most brilliant writers on bees that the press has ever known. Miller was not restricted to beekeeping in pre-eminence, for in whatever he undertook he was a leader. He was what should be termed a well-informed man in every walk of life, and was an expert in banking, handwriting, chemistry and mechanics. It was this power and desire to shine in many ways that cut his life short, for he was prone to wear himself out in his hustling along so many lines of active life.

Miller became interested in bees some forty years ago and very quickly became a leading light. His family duties probably kept him from entering into bee-business for a livelihood, for that industry in New England was, until very recently, scarcely capable of supporting a family of six. Miller had one daughter and three sons.

The active mind of Miller was the source of many inventions, some of which were simple and useful to the average apiarist, but others of which were too complicated for the average man to make use of. Among other inventions he made a machine which would take unfolded sections at one end and put them forth at the other folded and with foundation, both top and bottom pieces, in place. Another was an uncapping machine which would eat up Hoffman frames as fast as you would put them in. He was rarely satisfied with apiarian devices as he found them, but was ever eager to improve. Not unlike some of the rest of us in this respect.

His exploits with observation hives were very interesting and yielded an abundant fund of information relative to the habits of the bee in the hive. Some of his hives were double and treble glazed, so that they were warm and needed no outer case. Miller early showed that observation hives were better exposed to the light if one was to see the bees in a natural and undisturbed state.

Forty-two years of service in a bank told on Miller's health and for some years back it was his desire to get out of the bank and into beekeeping for a livelihood. He had made definite plans to leave the bank this year and was building up apiaries with that in mind when his heart, which for two or three years back had been giving out warnings, suddenly failed him while with his bees on June 10 last and his death came the next day.

Miller was not a practical beekeeper. Most of us are prone to be too experimental in the business. Indeed, it is difficult to conceive of a lover of bees who does not delight in experimentation. Miller had this quality in excess, and was continually leaving one experiment for another, finding it exceedingly difficult to build up a simple system of beekeeping and stick to that one zealously. That very weakness would have made it difficult for him to make a successful venture in keeping bees for a livelihood if life had allowed him to carry out his plans of leaving the bank and devoting all his time to brilliant mind would soon have dis the bees. It is possible that his very covered this fact after he once started in with bees in earnest. The writer was very much interested in his plans for this reason, wondering whether he had it in him to become a plodding, practical beekeeper.

Miller's real force was in analysis. He was widely read and remembered what he read. His writings, which have been before the readers of our principal bee magazines for over a score of years, should be garnered and edited into book form. There is a wealth of information and instruction in them. Miller's analytical mind was quick to see flaws and quick to see good points. He never hesitated to state his mind, possibly too sharply at times. Some plodding mind, failing to see the point of some of Miller's writings, were prone to think the man visionary. Some even went so far as to question whether Miller ever owned a beehive. It is true that Miller obtained many of the subjects, upon which he wrote, from reading, but he had plenty of bees for forty years. Rare was the half-holiday or Sunday afternoon, when the weather permitted that Miller was not with his bees.

It is now well known to the readers of this outline of Miller's life with the bees, that he had gathered together a remarkable library of bee-literature, and that he had previous to his death generously given this library, in toto, to the Dr. Miller Memorial Library. Coming so soon before his death, this splendid act by Arthur C. Miller crowns all his beekeeping career gloriously.

A New Beeman

Dr. and Mrs. R. L. Webster, of the North Dakota Agricultural College, announce the arrival of a 7-pound boy, Robert Hugh Webster, on June 26. There will probably be more buzzing than ever around the state entomologist's office now.

A New Man for Iowa

A. D. Worthington, of Greensboro, Ala, has been selected to fill the vacancy as Extension Apiarist at Iowa College of Agriculture, following the resignation of Newman I. Lyle, who left on July 1st, to take personal charge of his apiaries in northwest Iowa. Mr. Worthingon comes highly recommended and takes up the work in Iowa under favorable circumstances.

Place shipping cage on bottom-bar of brood-frame with brood to bottom of comb.

AMERICAN BEE JOURNAL

Established by Samuel Wagner in 1861

The oldest Bee Journal in the English language.
Published Monthly at Hamilton, Illinois.

Entered as second-class matter at the Postoffice at Hamilton, Illinois

C. P. Dadant ---------- Editor
Frank C. Pellett ---------- Associate Editor
Maurice G. Dadant ---------- Business Manager

Subscription Rates: In the United States, Canada and Mexico, $1.50 per year; five years, $6.00. Other foreign countries, postage 25 cents extra per year.

All subscriptions are stopped at expiration. Date of expiration is printed on wrapper label.

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THE EDITORS' VIEWPOINTS

IMPROVING BEE PASTURE

A visit with Mr. Southworth at Sioux City, indicates that the change in opinion of Iowa farmers, upon sweet clover, putting it in the class of useful, soil enriching plants instead of the class of noxious weeds, where it was some twenty years ago, will make sweet clover one of the most common land rebuilders. Northwestern Iowa and the Dakotas are coming to the front as great honey producers. Were it not for the long, cold winters, the Dakotas would probably become an Eldorado for commercial beekeepers.

The hilly vicinity of Sioux City places that town among the desirable places to live and enjoy life.

THE OLDEST BEE MAGAZINE

We have often stated that L'Apiculteur, of Paris, is the oldest bee magazine. In the Bee World, we see it stated that the oldest bee magazine is the "Reinische Bienenzeitung," now in its 74th year. The Paris magazine is only 67 years old.

MARKETING HONEY

Ten years ago very little was said in the bee magazines about the cost of producing honey. It has not been until recent years that beekeepers have given any considerable thought to the cost of honey production. This has largely been due to the fact that overhead expenses and labor, etc., have increased to the point where it was necessary to be on the lookout for reduction of production costs.

Any small beekeeper nowadays is keeping track of his production costs and cutting them in every way possible. In fact we hear in many instances of honey being sold below cost and queries as to the remedy.

Obviously either marketing costs will have to be reduced or else the demand for honey will have to be increased so that the proportionate cost of marketing will be less.

We believe that there are still too many small beekeepers who do not realize that the cost of packing honey and of selling must be counted, even though they pack their honey themselves and sell it locally. There is a tendency on the part of the individual beekeeper to think that all honey which he produces and sells is clear profit, from the fact that he distributes the honey himself. The item of cost is still there and should be taken into consideration.

In fact costs, in a large number of instances, are very much higher than when the same honey goes through the regular market channels and possibly through the hands of several jobbers and middlemen.

When we get to the point where honey will be at a universal price, that is, sold at the same price by the small producer locally that the same honey can be obtained through the larger packer or middleman, then we will have arrived at least at a part of the solution of our marketing problem.

It behooves the beekeeper to watch not only his production costs, but also cost of marketing, and the avenues by which better marketing can increase the price.

MOVING PICTURES TO ADVERTISE HONEY

In the "Gazette Apicole," Engineer Alin Caillas urges beekeepers' associations to use this method for advertising honey among the public, and expresses regret at "the total lack of organization spirit among beekeepers and the absolute want of initiative in the associations." We quote, further:

"From the rostrum of the Gazette Apicole, which is, without cajolery, the best and most read of our journals, I had already developed this idea of cinematographic advertising, in an article on 'Good Propaganda.' I still believe that such a method would bring results. I hoped that a few enthusiasts and a few critics could be found among the beekeepers and that the question once brought forward, it would be discussed and worked over to bring results. I was mistaken. A few recommendations remain without echo, especially when it is necessary to pay out a little money."

The writer goes on to say that a few good films could be produced to be used by beekeepers' associations, before the public. Each association could select its particular method of developing propaganda, by the use of the film, of which it would have entire control. By clubbing together, a few important cities could be selected, in which these films would be displayed for weeks together, say three or four weeks at most.

With such an investment of perhaps not more than $30 to $50, a local association would be able to reach thousands of sightseers. Such publicity would be bound to bring results, owing to its originality.

In the United States we now have quite a few films, from active firms and from the Department of Agriculture. But it has not yet been made a practice to display those locally and repeatedly before a public of consumers. So far, we appear to think those films are made for the beekeeper. But they will serve a much more useful purpose if we display them to the general public, free of charge. They must be explanatory, or must have a good interpreter. They must, most especially, display to the public the production of both kinds of honey, comb and extracted. They must show the great difference between the old ways of box hives and bee trees, and the modern movable frame methods. There are good films already in existence, but they are neither explicit enough nor numerous enough. Now that local and county associations are beginning to form, the beekeeper must be made to realize that he can increase his honey sales ten times over by enlightening the public and nothing will do it so thoroughly as what we are in the habit of calling "moving pictures."

THE BEEKEEPER MUST BE A BUSINESS MAN

Once upon a time, when the dollar was worth a dollar, the farmer and honey producer did not need to be a business man. That day has gone by. In its place there remain two kinds of farmers and two kinds of beekeepers. One looks back at the good old days when there was a profit in honey production.

The other kind of farmer and honey producer, unhappily yet in the minority, is the one who has changed his methods of selling honey and is making a profit today, in spite of the dollar value.

We have in mind a beekeeper who sells all the product of several hundred colonies in one small city and has to buy honey to fill his demand. He markets through his grocers, has a wholesale price for the grocer and a retail price for the consumer. He runs advertisements about honey in his local paper and in each advertisement names every grocer who has his honey in stock. He grades honestly, uses clean, new containers with attractive labels, and lets the other fellow cut prices. He is making a profit. What is there about his methods which you or we could not use?

The day has gone by when the honey producer did not need to be a business man.

MEXICO TO THE FORE

A small manual of 88 pages has just been issued by Jose Rivero Carvallo, of Puebla, Mexico, giving in a concise form a description of the natural history of bees, modern hives, modern methods, honey plants, etc. It is a step in the right direction and we are glad to see it.

FIXING HONEY PRICES

When you sell your honey, fix two prices, a wholesale and a retail price. The wholesale price should never be allowed, except to dealers in honey. No consumer has any right whatever to a wholesale price on honey. It immediately suggests that something is wrong and you are trying to unload. He will laugh up his sleeve at you after working you.

How can one accept the co-operation of his grocer in selling honey if the retail price is not maintained when selling to customers? Unhappily, beekeepers have fallen into bad grace with most grocers because they cut prices too often. No one has any faith in a price cutter or his product. But they have faith in the man who will sell at a profit-giving retail price and who backs up his product by advertising and push.

Too many try to find a boon by selling direct to the consumer and then wonder why the grocer isn't their best friend. The grocer expects the same backing on any product he sells as he gets on Gold Medal flour, Post's breakfast foods or Armour's hams. He is getting it from those beekeepers scattered through the country who are helping to live down price-cutting and who are succeeding by using modern sales methods.

The unbusiness-like beekeeper wails, but he wails alone. The successful business beekeeper has no time to wail. He is selling honey and cashing checks.

WINTERING IN THE CENTRAL NORTH

The editor's enquiries during his trip in northwestern Iowa and Nebraska indicate that there is considerable successful outdoor wintering, when the bees are protected in some way. Mr. Sherburne, of Lone Tree, Iowa, winters the bees in 3-colony winter cases, all facing the same way. The colonies are kept in the winter cases until late spring. The empty cases are left behind the hives all summer; they are roofed with tarred felt and will probably last a number of years. They are built of very cheap, thin lumber, purchased from general stores, in the shape of empty boxes of every description. Lumber is an expensive item nowadays and will continue to be expensive, for America has not yet begun to economize on timber.

Mr. Carhart, the able president of the Nebraska Honey Producers, of Wayne, winters his bees by wrapping the hives in tarred paper and likes the results better than wintering in winter cases. He winters in two Langstroth ten-frame stories. His location is in northeast Nebraska.

HONEY AND WAX PRODUCTS

What can we make with honey? This question has been answered by a French manufacturer and beekeeper, dealer in bee supplies, Mr. A. Mathieu, of Chateauroux. He sent us samples of 24 different products, candies, gum drops, chocolates, jellies, made with honey; also polish of different shades for wood and iron, tin, silver, etc., shoe blacking, shoe polish, from white to black, all made in part with beeswax. It shows what a variety of substances may be made from the bees' products. All these things are of the very highest quality.

The tin boxes which contain these ingredients are nearly all lithographed on the metal with very fine engravings. We can surely learn something from these specimens.

But there is duty on all these products. Uncle Sam had to have his share and although the goods were only small samples, we had to pay $2.80 of duty upon the lot. Of course, the French government gets a similar dip on everything we send over there, in the hope of finding purchasers. And that is what is called international traffic. Bite me and I'll bite you. That is how we understand peace on earth and good will towards men.

SAVE THE LUMBER

Are we not interested in saving lumber more than the average farmer? We need hives, frames, supers, winter cases, etc. But every day lumber becomes a little more scarce, a little poorer in grade. This is a country where, forty years ago, the people living in the finest white pine sections would cut down trees four feet in diameter and roll them to the land line, for a fence, just to get rid of them.

Those of us who have traveled in Europe know the contrast between the timber land of any European country and that of our own. When we cut down timber, here in the United States, we leave standing the dead trees, the crooked trees, the trees that are unfit for anything, leaving whatever brush there is and not caring whether the trees that we cut fall down upon the young growing trees and crush them. We take away only that which we see fit to use and leave a waste of land, brush, unsightly trees and worthless timber that will never amount to anything. We boast of the resources of our country, as if we had created them, but meanwhile we destroy them as fast as we can. A cut-over timber in this country, is a reproach to civilization.

In Europe they select some of the best growing young timber to preserve it for future growth; they cut away all dead trees all crooked trees and worthless timber; they carefully save all the healthy young growth. To prevent forest fires they make avenues a hundred feet or more in width through the growing timber. They forbid the pasturing of the young forest until the trees are large enough to be safe from the browsing of cows, horses or sheep. So their timber always looks good and gives promise for the future, while we have nothing left of the nicest timber land but a wreck of its past splendor.

It is time that the people of America awoke to these facts and the beekeepers need to point it out as much as any class of men. We need concerted action and regulations on the cutting of timber and the protection of the young growth. Let us think about the welfare of the coming generations and at the same time help ourselves. Those countries where there are nothing but ruins were probably at one time as thrifty as we are today, but probably also neglected their opportunities, thinking, as we now do, that they would always thrive.

LOCAL BULLETINS ON BEEKEEPING

It is becoming quite usual to publish local bulletins for the information of the beekeepers of a county or of a district. This is being done even in the southern states. The Anderson County, South Carolina, Association appears to be a lively one and its bee bulletin is of interest. The county looms up as very progressive, having large factories and modern facilities of all kinds. They are setting a good example to the rest. More honey production will result in a better managed market and more profitable sales, as honey will become a staple instead of being an occasional product, unknown to the masses of consumers. In a country which consumes 102 pounds of sweets per capita, the two or three pounds of honey produced per capita ought to find a ready sale, when its producers are organized.

HONEY A SWEET MEDICINE

Ph. J. Baldensperger writes in the Bulletin of Beekeeping of the Alpes-Maritimes:

While traveling through Spain I happened to meet a beekeeper who had a few colonies; I asked him where he sold his honey. "Here are my customers," said he, pointing to a number of children, resplendent with health. "Why should I go to the druggist to buy extracts of plants, which are bitter, when the same medicine is found in the honey that my bees produce, in the sweetest shape?"

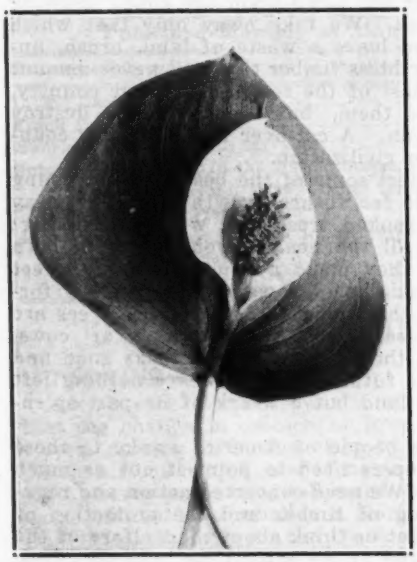
WHEN AND HOW TO REQUEEN

In the excellent article upon this subject in this number, by Mr. E. M. Cole, the reader will find that Mr. Cole is opposed to requeening in August. This is because there is no honey flow in Mr. Cole's district then. He is right in objecting to the introduction or rearing of queens when there is no honey and consequently a limited number of drones. But Mr. Cole has overlooked the fact that, in many spots there is more or less of a honey flow at that time. So although he is right in his conclusions, the beekeeper will need to take in consideration the conditions in his own locality.

It does not pay to rear queens in a dearth, unless we create an artificial flow. There is only one advantage to this; it is that we might have drones of our own selection, by feeding the colonies which we desire as drone producers. But the fact remains that a time of scarcity of food is objectionable both for the rearing and for the inroduction of queens.

CLASSIFICATION OF FLOWER ODORS

By John H. Lovell.



The flowers of the water arum which grows in wet bogs have a disagreeable odor, attractive to flies.

In this the second article on "Odors of Flowers," Mr. Lovell describes the different kinds of odors and gives much interesting information concerning the smells that emanate from different plants. The next article deals with the attractions of odors to insect visitors to flowers, and last of all comes "Relation of the Honeybee to Odors of Flowers." While such a series of articles is of necessity somewhat technical, our readers will find them very interesting and of much practical value. Much information is here presented which has not previously been available in popular form.

THERE are only four kinds of taste, sweet, sour, salt and bitter. But the number of odors is very large and more are constantly being recognized. It is doubtful if the exact number will ever be known, as flowers, fruits, leaves, animals, minerals and chemical compounds present a very large variety of scents. New odors may also be obtained by the mixture of known odors. The resultant odor of a bouquet of flowers is unlike that of the individual flowers. If two colognes are mixed a perfume may be obtained that is different from either, as when lavender is mixed with hyacinth.

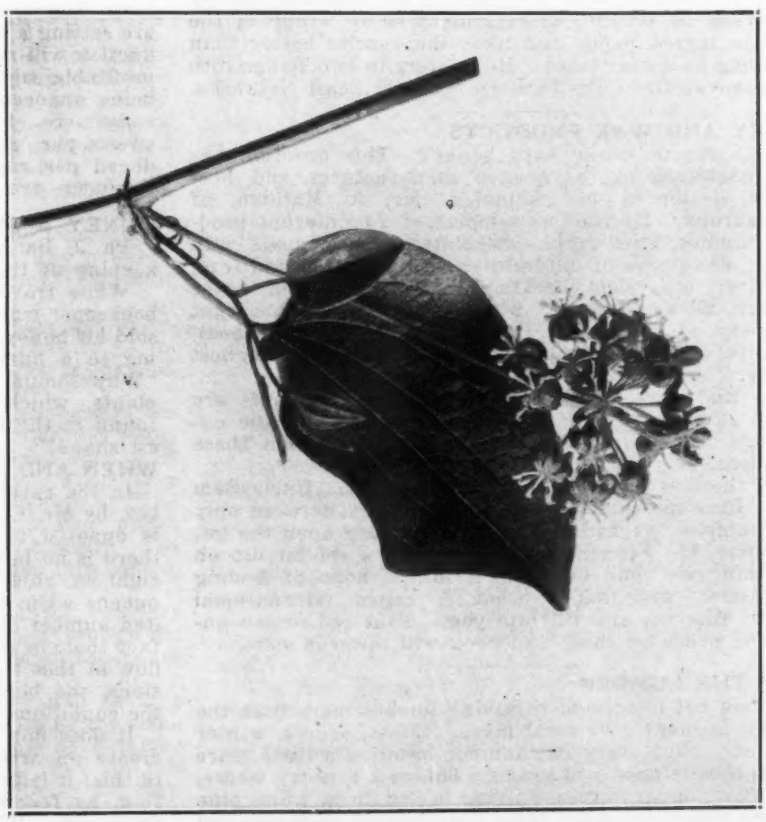
The Classification of Odors

"Have you an ambition to found a new science?" writes Alexander Graham Bell. "Why not measure a smell? Can you measure the difference between one kind of smell and another? . . . . Until you can measure their likenesses and differences you can have no science of odor." The sensations of sight or colors have been classified according to the wave lengths of luminiferous ether; and sounds have been related to the number of air waves; but odors thus far have defied measurement. If smell is a chemical sense, then odors might be grouped according to their chemical composition. But the composition of many scents is unknown, and the same scent may be produced by very different substances. Garlic and heated arsenic have the same odor. Sulphuric acid mixed with water has the same odor as musk, and prussic acid has the odor of nitro-benzine. Mice and ringworm of the scalp have the same smell. A chemical classification of odors is open to many difficulties and at present is not practical.

The Swedish botanist Linnaeus divided the odors of flowers into seven classes, three of which were agreeable, the aromatic, fragrant and ambrosial. Near the close of the last century Swaardemaker arranged odors in nine classes, and in 1916 Henning reduced the number to six. For popular use a division into eight groups seems to me most satisfactory. It is artificial, incomplete and open to much criticism; but it will probably meet the requirements of most beekeepers, agriculturists and nature students. In many instances there will be a difference of opinion as to the odor of certain flowers. A flower may exhale two odors, or its odor in the morning may be different from that in the evening. The scent of the foliage of plants is often different from that of the flowers. There are also odors which it is difficult to place in any of the classes, and in several classes the odors differ widely.

Agreeable Odors.

1. Sweet Flower Odors. The commonest odor among flowers is that of honey. It is found in the apricot, cherry, almond, buckthorn, Alpine forget-me-not, milkweed, lime-tree, willows, thistle, sweet alyssum, the clovers, buckwheat, sand verbena, Azalea, wax plant and Scotch broom. Vanilla odor is emitted by heliotrope, woodruff, twin flower, dwarf elder, winter coltsfoot, several orchids, the small bindweed, and the Alpine **Saussurea.** Violet odor occurs in many violets (but some species are scentless), stocks, wallflower, **Hesperis, Acacia farnesiana,** wild bean **(Apios),** a variety of Iris, a va-



Blossoms of carrion flower have a nauseous odor and are visited chiefly by flies.

riety of Gladiolus, a variety of tulip. Ethiopian **Tinnea,** several gentians and lilies, a species of crocus, and the stems and roots of the Indian shrub **Hugonia mystax.** A very common scent among flowers is that of new mown hay. This scent is emitted by the blossoms of **Alyssum compactum,** Mexican ambrosia, **Calogyne** (a genus of herbs from China) and the leaves and flowers of the woolly cone flower. The fronds of several ferns also have the pleasant odor of new-mown hay.

There are many other sweet odors exhaled by flowers, which for want of special names must be called after the flowers themselves, as the odors of hyacinth, lily-of-the-valley, lilac, honeysuckle, rose, Narcissus, jessamine, Cyclamen, mignonette and ylang-ylang. Bush tea **(Cyclopia)** has a pleasant tea-like fragrance. The Gardenia or Cape jessamine is noted for the sweetness of its fragrance. The flowers of the orange tree exhale a deliciously fragrant perfume.

2. Fruit Odors. The pleasant aromas of the apple, pear, apricot, pineapple, citron, peach and quince. The odors of wines, ethers, alcohols and beeswax. A banana odor is emitted by the flowers of **Magnolia fuscata** and the pawpaw. Apricot odor is found in the bloom of **Plumeria alba,** Agrimony, and the Belladona lily; pineapple odor in the Victoria lily, the sage **(Salvia rutilans),** and **Colocasia odora.** The whole plant of dittany gives off a citron-like odor. The purple flowers of **Heterotropha asaroides** have the odor of ripe apples. A tree of Central Asia, **Hovenia dulcis,** has the odor of ripe pears. The rose, Catherine Mermet, has the fragrance of a ripe peach. The crushed flowers of Carolina allspice, according to Asa Gray, exhale the fragrance of strawberries. The blossoms of **Acacia biflora** and of furze have the smell of the cocoanut. The odor of the turnip is found in the cactus **(Cereus Napoleonis).**

3. Aromatic or Spicy Odors. In this group are included all spicy smells, as cloves, ginger, pepper, nutmegs, cinnamon, caraway, anise, peppermint, camphor and turpentine. The flowers and leaves of many species of the mint family have an aromatic odor, as mint, thyme, lavender, pennyroyal, rosemary, summer savory, sage, catnip, cedronella and horehound. Clove odor is found in a number of pinks, broomrape, the yellow-flowered currant, and several orchids. The flowers of the cinnamon rose have the odor of cinnamon, and nutmeg odor occurs in the custard apple family. Allspice **(Eugenia)** has the odor of a mixture of spices. The leaves of the Indian apple tree **(Feronia)** have the odor of anise. The yellow flowers of agrimony have a spicy odor. The flowers of **Blumea lacera** have the odor of turpentine, and of **B. balsamifera** of camphor. Various roots, seeds and woods have likewise an aromatic odor, as sassafras, cloves and cedarwood, Canada balsam, Eucalyptus oil.

4. Musk Odors. The flowers of musk mallow, musk hyacinth, musk orchis, musk rose, musk plant, musk thistle, musk okra and musk heron's bill, have all musky odors. Artificial musk, which is about one thousand times stronger than natural musk has probably the most powerful odor of all known substances. There are many improved forms of the musk plant in cultivation. This little plant, a native of North America, is widely grown for its scented foliage. An herbaceous plant of northern Australia, **Hypoestes moschata,** has a powerfully musk-scented foliage, the odor being retained in the dried leaves. The musk

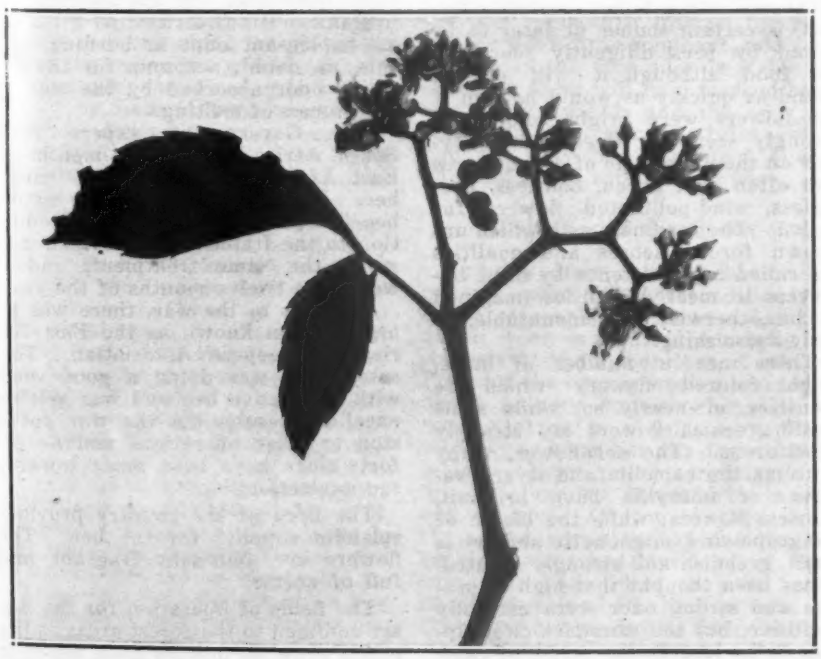
The fragrance of the flowers of white mignonette is well known.

pear, the musk plum, the root of **Ferula sumbul,** of India, used as a tonic, the leaves of the musk tree of Australia and the wood of two small trees of tropical America have the odor of musk. A night blooming cactus and two species of larkspur have musky flowers, and a small tree **(Catinga)** has musky fruit-buds. Many animals have also a musky odor as the musk-ox, musk-rat, musk-beetle, musk-cat, musk-mole and musk-turtle. The perfume of patchouli comes from an East Indian plant. Amber and ambergris. According to the Koran there are in Paradise many beautiful nymphs created out of pure musk. (I do not vouch for the scientific accuracy of the last sentence, but many thousands of our fellowmen believe the Koran good authority for such a statement).

Strong and Rank Odors.

5. Onion or Alliaceous Odors. The leaves and bulbs of the onion and garlic, but not the flowers, which are pleasantly scented. Some 300 species of the genus **Allium** have the foliage alliaceous scented. The odors of chlorine, hydrogen sulphide, and arsenic and its compounds when heated. The flowers of the fetid **Pothos.** The dried sap of certain Persian plants sold under the name of asafoetida. Dried fish.

6 Rank Odors. The goat odor (due to caproic acid) of **Orchis pallens,** the lizard orchis, and two species of lady's slipper. The disagreeable odor of valerian, rue, poppy and some species of datura. Elder odor in the black elder, strong odors of the leaves of many species of the carrot family, and barberry stems. Horseradish odor, and smell of decaying horseradish



Kerner thought that the small, green flowers of Virginia Creeper emitted an odor perceived by bees but not by man.

given off by heated compounds of selenium. The flowers of some species of hawthorne smell like herring pickle. The leaves of the common hemlock have the odor of mice. Stale cheese, rancid fat and lactic acid. The tobacco odor of Bonpland's birthroot, and the bitumen odor of the flowers of the viscid iris.

Repulsive Odors

7. Foul Odors. The odor of bedbugs, squash bugs and opium. The flowers of **Rosa laxa,** two species of larkspur, and **Orchis coriophora** have the odor of bugs. The panicled cornel and **Sorbus aucuparia** have the odor of beetles. The disagreeable odor of the flowers of French marigold and **Melianthus,** and of the stems, seeds and roots of coriander.

8. Nauseous Odors. Flowers with the odor of decomposing animal excreta, urine, putrid fish and the skunk. These odors are found in many aroids,Rafflesias, Aristolochias, or birthroots, Balanophorce, Stapelias and in some tropical orchids. The Balanophoraceae are a tropical family parasitic on the roots of forest trees. The plants resemble fungi, such as toadstools, bearing flowers with a carrion odor. Common examples of flowers with nauseous odors are the carrion flower, a species of pawpaw, the spotted Arum, dragon plant, Dutchman's pipe, purple trillium and skunk cabbage. The cap-like top of the stinkhorn fungi deliquesces into a sticky semi-fluid mass with a strong fetid scent attractive to carrion flies.

Different varieties of flowers belonging to the same species may differ widely in their odors; and this is likewise true of different species belonging to the same genus. Mr. Curtis of Torquay describes 17 sorts of scent in roses, the more important of which are: sweetbriar scent, as in the garden variety; moss rose scent, as in the moss rose; musk scent, as in old musk rose; an astringent, refreshing scent in China rose; old cabbage scent, as in the well-known Provence; old tea scent, as in the yellow tea rose, almost unpleasantly strong for some tastes; and nectarine, or fruit scent, as in Socrates. The petals of the highly scented varieties have on their inner surface minute perfume glands or vesicles, containing the highly volatile essence, under the microscope distinctly visible. Those on the petals of sweetbriar and moss are almost visible to the naked eye. But a part of the roses are wholly scentless.

Of the English hybridized varieties of clematis, fair Rosamond and Edith Jackson, have the scent of violets; Stella and Vesta have the fragrance of the primrose. **C. paniculata** has a penetrating fragrance; **C. Fortunei** has the odor of orange blossoms; **C. crispa** has the scent of bergamot, and **C. davidiana** has the smell of lemon and spice. Other species of clematis are odorless. While many pinks have a rich spicy odor, others are scentless. In the genus gladiolus are found violet, pink and sweetbriar scents. In Iris also there occur a variety of odors, as violet, lily-of-the-valley and orange blossom scents. Many tulips are scentless, but others are sweet-scented.

As the great family of orchids surpasses all other families in its remarkable forms and colors, so it is unequalled in its variety of odors. Among the scents found in different species are elder, heliotrope, wild grape, sweet pea, lilac, vanilla, pansy, lily-of-the-valley, spicy, hawthorne, tuberose, honeysuckle, musk, pineapple, almond and banana. Many kinds exhale a different odor in the morning than in the evening. M. Riviere noted the following differences: **Cattleya elegans** has the odor of tuberose in the morning and of **Gardenia** in the evening. The lady's slipper **(Cypripedium Schlini)** in the morning has the odor of primrose and in the evening of violets. **Dendrobium glumaceum** exhales the perfume of the lilac in the morning and of heliotrope in the evening. **Dendrobium nobile** has the fragrance of primrose in the morning, of honey at noon, and of hay in the evening.

A tropical orchid of the genus **Renanthera** produces flowers consisting mostly of white scentless flowers, but at the base of the cluster are two yellow flowers which open first and remain odorous throughout the entire period of blooming.

Kerner thought that insects perceived odors not perceptible to man. The Virginia creeper, a vine common in thickets and hedgerows and used to cover verandas, has small, greenish, nearly scentless flowers. They secrete nectar freely and are frequently visited by bees, which Kerner thought would not be able to find the bloom unless it exhaled a special odor perceived by them alone. But such a supposition is entirely needless, as is evident to anyone familiar with the habits of the honeybee in searching for nectar. The abundant supply of nectar, which is not entirely odorless, is certain sooner or later to be found by bees diligently searching for food, although it will not be found as quickly as would happen if the flowers were bright colored or strongly scented. Bees find honeydew on the under side of green leaves and often visit green, odorless, nectarless, wind-pollinated flowers for pollen. The readiness with which unknown forces, senses and qualities are called into existence by some observers to meet difficulties imagined to be otherwise insurmountable, is truly astonishing.

There are a number of large, bright colored flowers which are scentless, or nearly so, while some small greenish flowers are strongly odoriferous. The cornflower, many gentians, the camellia, and several varieties of amaryllis have brilliant, odorless flowers; while the bloom of the grape-vine, mignonette and ivy is small, greenish and strongly scented. It has been thought that high coloration and strong odor were mutually exclusive, but the examples cited appear to be largely the result of coincidence, for many very conspicuous flowers are also strongly scented, as magnolia, many pinks and tropical orchids. Also a part of the roses and tulips are scented and a part not; while some green flowers are odorless.

In compiling the lists of odors I have been greatly indebted to Kerners "Natural History of Plants," Knuth's "Flower Biology," and especially to "Sweet Scented Flowers and Fragrant Leaves," by Donald McDonald.

HONEY AND BEES IN EAST AFRICA

By Vice Consul Oscar Thomason, Nairobi, Colony of Kenya, Africa.

The honey and beeswax industries of East Africa are solely in the hands of the natives. Their methods of gathering and extracting are very primitive. The honey is gathered from hollow trees, also logs hollowed by the natives, cut in three-foot lengths and hung in the trees for the bees' use as hives.

In gathering honey the swarm means nothing to the native, it is only the honey and wax that he wants, hence he scrapes the trees and logs clean of their contents, puts the honey, wax, bees, larvæ and all into gourds and carries these to his hut, where the mass is strained through a coarse cloth to get the clear honey, after which the wax is melted in boiling water, then skimmed and moulded into blocks ready for sale. The honey is rarely marketed. Occasionally it is sold to white settlers, who pay three or four pounds of salt for a large pail full. The wax is usually bought by the Indian traders, who pay for it in native goods such as beads, brass wire, blankets and cheap, coarse cotton cloth.

The odor and taste of the wax are not due to the flora but to the methods of handling. The native is not a clean individual, nor are his methods hygienic. His favorite fuel gives off an unpleasant odor in burning, and this, no doubt, accounts for the peculiar odor absorbed by the wax in the process of melting.

The Government expert from South Africa spent some months in East Africa in studying the native bee. His opinion is that the native bee is equal in capacity for production to the Italian bee, provided it is given the same treatment, and it works the twelve months of the year.

Previous to the war, there was an organization known as the East African Beekeepers' Association. This association was doing a good work with the native bee and was getting excellent results but the war put a stop to these operations and no efforts since have been made towards reorganization.

The flora of the country provides splendid supplies for the bee. The flowers are abundant fragrant and full of nectar.

The fields of operation for the bee are confined to the forest areas as the plains grow no flowers upon which it can work. Among the flowers providing food for the bee are the acacias

and the red mimosa. Some varieties of the eucalyptus provide a good source of honey. The cape chestnut, Jessamine vines, begonias, loquat, clovers and numerous orchids are rich in their honey-producing qualities.

Very few beekeepers' supplies are held in stock, as there is such a small demand for them.

The latest statistics (1821) show that 395 tons of beeswax, valued at 30,963 pounds sterling, were exported from East Africa.

QUEEN INTRODUCTION UNDER UNFAVORABLE CONDITIONS

By J. H. Merrill, Apiarist Kansas State Agricultural College and Experiment Station.

(Contribution No. 89, from the Entomological Laboratory, Kansas State Agricultural College. This paper embodies some of the results obtained in the prosecution of project No. 126 of the Agricultural Experiment Station.)

THE average beekeeper who attempts to introduce queens in accordance with directions which he has received from various sources, meets with failures so often that he becomes discouraged and confused. All of the methods which have been described have really been successfully practiced and may be successfully used again by any beekeeper who reproduces the conditions under which the system was originally tried. One of the most serious criticisms which can be offered concerning many writers who describe new practices is that they neglect to record all of the details of the conditions that were present when their plan succeeded.

Perhaps if we should stop and consider just what takes place within a hive when a new queen is introduced, it would give us a hint how to succeed even under unfavorable conditions. First, let us consider why it is that the bees realize their old queen has gone and that later another queen has taken her place. There is a scent gland on the abdomen of the queen bee which emits an odor powerful enough even to be recognized by human beings who are obliged to depend upon one nose for the recognition of odors. How much more apparent, therefore, this odor must be to the worker bees who are supplied with several hundred olfactory pores by means of which they detect odors. If through accident or design the queen should be removed from the hive, its odor also would depart and its absence would soon be noticed by the bees. causing them to manifest considerable restlessness. If within a reasonable length of time another queen is introduced which is so protected that the workers cannot attack her, a queen odor will again become apparent in the hive and the restless condition of the bees will disappear. Yet, as each queen emits an individual odor. the new queen will not be acceptable to the bees until the odor situation has been adjusted to their satisfaction. The success or failure of any method of introduction depends upon the extent to which this condition is met.

Queens are usually much more readily accepted when bees are bringing in nectar from the field than during a period where there is a dearth. On page 296 of the American Bee Journal, 1923, Wallace Park makes the statement that "Bees are guided by one instinct at a time." This explains a great many seeming contradictions of bee behavior. For instance, if the bees are being governed by the nectar-gathering and honey-storing instinct, their protective instinct seems to be lowered. It is a well-known fact that worker bees from other colonies are permitted to enter the hive at such a time when ordinarily they would be attacked. Furthermore, if the odor of the strange queen is responsible for the antagonism shown her by the inmates of the hive, the contrast between the odor of the hive and that of the new queen would be less noticeable when fresh nectar is being brought in. This is not due to the fact that the odor of the queen has been changed, but rather that the hive odor itself has been changed by the added odor of the incoming nectar. After the honey flow is over the hive odor becomes a more established fact, and if a new queen is introduced at this time she will be met with two unfavorable circumstances: First, she will meet the bees when their instinct for protecting the hive is dominant, and second, since the hive odor is stable at this time there will be a marked contrast between this and the odor of the incoming queen who brings with her not only her individual queen odor but also a foreign hive odor.

Behavior of the Queen

Judging from the behavior of queens under different conditions, it seems reasonable to assume that the queen odor is emitted much more strongly at times than it is at others. Probably the odor is weaker when the queen is very young, when she is moving about in a quiet or orderly manner, or when her physical vitality is low. Very young virgin queens are quite readily accepted by a colony of bees. Of course, they have the added advantage of not having acquired a marked hive odor at this time. On page 70 of the text book on "Beekeeping,' Dr. Phillips tells of observing queens during their preliminary flights. During none of these flights were they pursued by any drones; yet, when they left the hive on a rapid, excited flight, the drones immediately gave chase. However, as these observations were made in a greenhouse, the queen's flight was soon stopped by the glass roof. Upon her coming to rest the drones ceased to follow her, which indicates that probably the queen odor was emitted very weakly during the time when she was taking her location flights, but that it increased greatly in volume during her rapid flight. This would account for the fact that when a newly-introduced queen becomes excited and runs, she emits an individual odor which is so strong that the bees recognize she is a stranger and promptly ball her.

One of the methods which is recommended for introducing queens is to starve the queen until she is weak, after which she may then be successfully introduced into a colony from which the queen has been removed. It has been recorded that queens which were about to be superseded have been successfully introduced into colonies that would not otherwise accept a queen. This seems to bear out the belief that queens emit their odor weakly at times of low physical vitality. At these times their movements also are slower and the queens manifest less excitement. If excitement causes a newly introduced queen to emit her queen odor so strongly that it provokes the bees to kill her, this need not necessarily occur after the queen has become thoroughly established in the colony.

When queens are introduced by the so-called smoke method, the colony is thrown into great confusion, whereupon the bees begin to fan the air excitedly with their wings, thus emitting a worker odor much stronger than usual. No one who has watched a swarm of bees entering a new hive can doubt that the mass odor given off by the worker bees at such a time is a very powerful one. A new queen introduced into a hive in which there is this superabundance of colony odor would necessarily acquire the hive odor sooner than if they were simply placed in a colony of quiet bees. Furthermore, as the bees act upon only one instinct at a time, they must needs occupy themselves for a time with ridding the hive of the vast amount of smoke that has been poured into it. This combination of circumstances by which the bees are obliged to divert their attention from the queen when the colony odor is particularly strong would account for the fact that this method often succeeds.

If queens are smeared with honey or dusted with flour before being introduced into a colony, their queen odor will be temporarily obscured. The workers remove the honey or flour from the queen's body, thus enabling her in the meantime to acquire the colony odor. Such courteous attention removes all cause for alarm or excitement and the emission of the queen odor is probably also reduced to a minimum.

Care Must be Used in Introduction

A percentage of queens is usually

lost during introduction, but this percentage is alarmingly greater when this is attempted under unfavorable conditions. However, there are occasions when it is necessary to introduce queens after the honey flow has ceased, as in colonies possessing laying workers, in colonies which have been queenless for a long period, or when conditions are otherwise unfavorable. With proper regard to methods, it ought to be possible to successfully introduce queens even under the above named conditions. There is great danger of losing the queens unless proper precautions are observed. Under such conditions an opportunity must be provided for the queen to acquire the hive odor while she is still protected from attacks of angry bees. After acquiring this hive odor, the queen will more probably be accepted by the workers if her acquaintance with them is made gradually and in an orderly manner, since becoming acquainted in such a way does not alarm her and cause her to emit a stronger, strange queen odor. It has been frequently observed that old bees are much more antagonistic to the new queen than are young ones. Consequently, any method of introduction by which the queen may first come in contact with the young bees would be preferable. Another probable source of excitement is the presence of a number of escort bees at the time of introduction. These escort bees carry with them the same hive odor as the queen, which adds to the offensive element. As the escorts are liberated the number of individuals carrying the strange odor is more than if the queen were unaccompanied by them. thus increasing by just that amount the possibilities of causing excitement at the time of her liberation. Furthermore, if the queen is introduced in the ordinary mailing cage, her entrance among the bees may be an abrupt one and the first bees with which she comes in contact may be old ones and naturally antagonistic.

Dr. Miller's method for introducing a valuable queen should succeed with colonies which have brood, even though there may be no honey flow at the time. Every beekeeper is familiar with his plan in which he put two, three of more frames of brood in an upper hive body over a queen excluder on a strong colony of bees. In nine or ten days this brood would all be sealed. After this the frames of brood are removed, the bees brushed off and the frames of brood then placed in a hive body, on the bottom of which a screen wire has been tacked. This hive body is then set back on the colony, the queen liberated on these frames, and the cover placed over all. He suggested removing this to a new stand after five days and the entrance reduced so that but one bee could enter at a time. Now this is Dr. Miller's plan for introducing a valuable queen, but it may also be used for introducing a queen into a valuable colony, because the nucleus to which a queen has been introduced in this way may later be united to the valuable colony by the newspaper method.

By this system the necessary precautions for introducing queens under unfavorable conditions have been observed because the queen will have first made her acquaintance in the hive with very young bees. In addition to this, her introduction will not be accompanied by any excitement. As she can begin depositing eggs when she desires, she will soon be engaged in the routine work of a queen in a normal colony of bees. If the queen is later introduced to the main colony by the newspaper method, she will be surrounded by her own hive odor, and instead of her becoming acquainted with the new bees, they will be obliged to enter gradually and become acquainted with her.

Another method which should succeed under unfavorable conditions is the push-in cage, or some adaptation of it. The merit of the push-in cage consists of the fact that the queen is liberated directly on the comb over emerging brood. If she is to be introduced into a colony which has no brood, or to a colony of laying workers, then a frame of brood should be placed in the colony for this purpose. To further safeguard the introduction of a queen into a colony of laying workers, the colony should be removed from its old stand and another hive body put in its place. If the bees are taken some little distance from the hive and shaken from the combs, the laying workers will not wander back to the colony. With the push-in cage, the queen is not accompanied by escorts, who might be objectionable to the bees. The first bees with which she will become acquainted will be the young bees, who will be friendly toward her, and if the cage has been pushed in over some cell containing honey, she can secure food even if the colony bees do not become friendly enough to feed her through the wires. There will be plenty of vacant cells in which she can begin laying, which should have a tendency to cause her actions to become regular and orderly. If the push-in cage is equipped with a queen excluder which can be opened up after two days so the bees of the hive can enter slowly and become acquainted with her without causing any undue excitement, it will increase the chances of this method succeeding. The queen is not thrown into the midst of the workers of the hive, but they are forced to meet her, and when they do they find a laying queen going about her own business in such an orderly way that they are not reminded of the fact that she is a stranger. It is because this method meets so many of the requirements for the introduction of queens that it is so successful.

In queen introduction, as in all other manipulations of bees, the fact is clearly brought home to us that we cannot change the nature of the behavior of bees. When systems fail it is not due to the fact that the bees have acted abnormally, but rather to our ignorance of the bee behavior or to some oversight on our part. We must first acquaint ourselves with their behavior, and the measure of our success will then depend upon the extent to which we conform our practice to their needs.

WHAT CONSTITUTES A COLONY OF BEES?

Some Editorial Correspondence

Question: Please define what is "a colony of bees."

J. F. Diemer, Liberty Mo.

Answer: My answer would be that a colony comprises the hive, the combs, with honey for the needs of the inhabitants of the hive, as usual at each season, a fairly good swarm of bees, say not less than 3 pounds, and a laying queen producing worker eggs. The number of bees, as well as the amount of honey would depend upon the season of the year at which the colony was considered. But I would not consider as belonging to the colony, unless specially understood, any supers, full or empty. In the Dadant standard hive, however, the cap always goes with the colony, but no supers inside, unless they are specified.

Will that answer your question? If not, let me hear from you again.

Question: Your accommodating answer is at hand, received with thanks. But I was not aware that it took a whole beehive to help make up a "colony of bees." Would it not be a colony if it had taken up its residence on a tree or a house? Would you have me believe that if I sold a colony that had my attic as their place of abode, my house would go with the bees? In that case a colony would be worth about $6,000. Is not a family of people a family unless it lives in a house?

J. F. Diemer

Answer: Your letter is at hand. I see that you are trying to get me to accept a queen and bees with the brood, if any, as a colony. Well, it is a good idea to know what we are buying before we agree to take it. But I would not want to buy a colony if it was in a house and the house had to go with it. Neither would I accept it "naked."

Next time you ask me a question I'll send for King Solomon and let him decide what the answer should be.

When you sell a colony that lives in your attic, I would advise you to prepare a hive to put them in before delivering them to your customer. If you won't agree to my decision, I'll appeal to Mrs. Diemer, and I am quite sure that she will demand that you furnish a hive in which to put that colony before it is moved.

Question: Don't you admit they are a colony even before they are put in a hive? Don't answer unless you want the last word. Mrs. Diemer would not decide. Let us leave it to Mrs. Dadant. J. F. Diemer.

Answer: Mrs. Dadant would not decide, so let us leave it to the readers of A. B. J. What is a "colony of bees?"

WHEN AND HOW TO RE-QUEEN

By E. M. Cole.

I HAVE nothing to offer the commercial beekeeper on requeening or the introduction of queens. They have their own plans and must often carry them out at times and in seasons that the small producer ought to avoid; and what I have to say will be mostly on what to avoid and what to expect if queen rearing and introduction are attempted at certain seasons.

I believe it was W. Z. Hutchinson who gave us the ideal to work for in queen introduction, and I must quote from memory: It is **"To bring the queen before the bees in such a place and in such a manner as they would expect to find her."**

Here are some of the things I have experienced in losing queens already established in the colony as well as loss in introduction; I believe the causes of loss are about the same and show us what is to be avoided.

Whenever I handle bees in any way enough to disturb the broodnest, except during a honey flow, I expect a per cent of lost queens.

If colonies are examined early in the spring for stores or queens I expect some loss of queens.

When queens are being mated in nuclei it is almost impossible for the beginner, and even some who are past that stage, to avoid frequent examination to look at the cell or young queen. This will cause a loss of young queens, even in a honey flow, and a heavier loss in a dearth of honey. Unless you wish to catch the queen, look for eggs or young larvæ at the proper time, and when found close the hive. This is evidence enough that the queen is there, and even this slight disturbance will add to the losses if there is even a slight tendency to rob. There is often a heavy loss of queens mated from either full colonies or nuclei during a honey dearth, even if they are not disturbed.

When there is a good honey flow on, and a queen is removed and a fresh laying queen substituted almost any plan seems to be a success, but when a queen coming through the mails is substituted, conditions are not quite normal, and some loss may be expected and a heavier loss if the colony is disturbed before the queen has become well settled to laying.

The loss of queen received through the mails may be very heavy if the bees are unduly disturbed or robbing is started in opening and closing the hive to remove the old queen and introduce the new one.

At such times I have noticed some loss in colonies not disturbed, and I think I know the reason for most of the losses I have mentioned and later will try to tell why.

The commercial beekeeper can probably afford to suffer some losses in queen introduction in order to save time, going over them later and requeening all that missed, but even he can afford to wait until the queens have become well established before disturbing them again.

In introducing queens that have come by mail, at any season, I believe the small beekeeper may well afford to do this: When you receive the queen, make a nucleus of two frames of brood and bees from the colony to be requeened, taking care not to remove the old queen. Introduce the new queen to this nucleus in the ordinary mailing cage. By the time she is released the old bees will have returned to the old colony.

When you removed the brood to form the nucleus you should have put in two combs at the side of the hive to fill up the space. When the new queen has begun to lay, remove the old queen, and if there is a honey flow on, remove the two combs you substituted, and lift up the two frames in your nucleus, queen, bees and all; allow the queen time to crawl in between the two combs, then gently set them down next to the side of the hive in the colony you wish to requeen. Doolittle said he did not lose one queen in fifty with this mode of introduction, and in a good honey flow I don't believe you will lose any except accidentally.

If there is no honey flow on remove the old queen and use Dr. Miller's newspaper plan: spread a couple of thicknesses of newspaper over the frames, pinch a small hole through it, not quite enough to let a bee through; set your nucleus above and let them alone for several days, and perform this manipulation with as little disturbance as possible. If a little robbing has been started, wait until dusk to set the nucleus above the colony.

I give this only to illustrate Hutchinson's rule: "To bring the queen before the bees in such a place and in such a manner as they would expect to find her." And this comes closer to it than any method I know of. It also brings her before them in the condition they expect to find her, an active, laying condition. A queen from the mails introduced in nearly any other manner I have found to be teased and pulled around more or less by the bees, before she begins to lay, and it probably injures her to some extent and causes her to be sooner superseded. I expect the majority of the queens I receive by mail to be soon superseded, nearly all of the ones introduced early in the spring to disappear by fall, so I usually watch these and remove the supersedure cells and get a fine lot of young queens.

Queens received in late July or August often disappear before winter, but some of them live over to cause real trouble in the spring, as they disappear at a time when the strength of the colony is seriously depleted before it can be requeened, or they bring on supersedure swarms at a time when the colony ought to be spending its energies in brood rearing.

I believe Hutchinson's rule covers most losses of established queens as well as queens to be introduced.

The last half of July and the month of August is the most trying time in this locality to raise good queens and get them mated; also for loss of laying queens already in the hive if the bees are manipulated or robbing is general.

In July and August both for pleasure and to note results, I used to go from colony to colony, blow a little smoke at the entrance, jar the hive a little, lift off the cover and find the queen between or on the top bars, not balled but "spread-eagled" and held there by six or eight bees. When there is some tendency to rob you may sometimes find queen after queen in this way.

I believe she violated the rule and the bees found her in a place they did not expect her.

Under natural conditions in a tree, box hive or skep she could not get in such a place; she could run to the top of the comb, but must stop there. I used to think she was held for her own protection but I doubt it now, and believe she is found out of place and is seized and held for "investigation" as a strange queen would be if found there and is held until it is ascertained that she is the legitimate queen and not an usurper.

Most beekeepers have seen a queen instantly seized by her own bees when only a moment out of the hive and then dropped on the top bars and have watched the bees evidently try to sting their own queen.

This accounts for most losses caused by bees being examined when there is no flow of honey, and when queens are introduced by the cage or similar methods. In these methods the queen may be "brought before the bees in such a place and such a manner as they would expect," but her condition is unnatural, the bees have lost a fresh laying queen, a great attraction to them, and have received a "stale" and jaded queen, and part of the method of introduction should be to let them alone until the bees and queen have adjusted their little differences, and this is of almost vital importance during a honey dearth when bees are on "edge" and queens are easily caused to run to the top bars.

This brings to mind the advice often given, "August is the time to requeen." Not in this locality; it is about the worst, and probably the worst in any locality that has no flow in August, and I recall once reading in a bulletin that in most localities in the United States there is a dearth of honey in August.

In requeening at this time your loss may be heavy; possibly you may prevent most of this loss by creating an artificial heavy flow. But most of us in creating an artificial honey flow might create a case of robbing that would be anything but artificial, but if you can do this you are in a position to give advice instead of receiving it.

Why select late July and August for rearing queens and requeening, a time so unnatural that in most localities the bees themselves are so far from the idea that they devote their spare time to killing off their drones?

If you do succeed in introducing queens received by mail at this season, you may expect your share of trouble next spring from the queens that live over and are superseded in early spring or bring on supersedure swarms at a time the colony should be building up for the surplus flow.

Queens I have received by mail have usually been superseded the same season without a jar, and only the normal loss of young queens when going out to mate, if introduced during the clover flow.

It is still more difficult to raise young queens in late July for August introduction. It is impossible to raise good queens except in a good honey flow, and it is a master beekeeper's job to create an artificial flow for both queen rearing and introduction.

If you want to try other strains of bees or introduce new blood, buy as early as it is possible to have them arrive during a honey flow; there are nearly always some queens that the bees are not satisfied with and this gives the bees a chance to supersede them the same season, and you a chance to get some fine supersedure cells.

But the best way is to raise your own queens on a good honey flow; in a locality like this, on the clover flow, and introduce them toward the close of the flow.

Dr. Miller said that it was useless to start cells before the bees themselves naturally start them, and that is usually at the beginning of the clover flow.

Both Miller and Doolittle state that bees naturally supersede most queens at the close of the flow and that is the best time to requeen your colonies.

This applies to queens reared under proper conditions, the larvæ well fed and cells matured in colonies large enough to keep up the proper temperature, and uninjured in transferring cells or introducing the queens.

Your own queens, if reared under poor conditions, or injured in handling the cells or in introduction will be superseded at a time just as costly for you as queens injured in being sent through the mails.

And in introducing either kind, try to **"bring the queen before the bees at such a place and in such manner and condition as the bees would expect to find her."**

But, except under urgent necessity, don't attempt to requeen in August unless you are sure of a good honey flow; and even if sure of a flow, if you expect to have queens come through the mail it will pay you to have them come in time to be introduced during an earlier flow so that the bees may have more time to supersede those they are dissatisfied with.

August requeening too often results in queens raised from scantily fed larvæ, lacking laying power and, like queens injured in the mails and introduced in August, likely to be superseded at the very time in the spring when the colony should be breeding at the heaviest.

It may cause robbing until colonies are nearly demoralized and queens already established in colonies, as well as queens in nuclei disappear. If you are trying an artificial honey flow, the least break in the flow may cause your cells to be torn down, and start another season of robbing.

Altogether, August requeening is only for the most expert, and even the expert will likely advise you to raise your queens on the clover flow if you are in a clover region, that even he usually produces a poorer queen in an August dearth than in a clover flow and usually produces them because of the usual advice to requeen in August.

I believe there is a time when bees are naturally inclined to supersede their old queens and it is **not** in this locality during the worst robbing season, August, but usually on the clover flow. Queens superseded in August or early in the spring are nearly always from larvæ that have been scantily fed or injured in some way, and many die so suddenly that the bees fail to replace them.

This gives us the hint to do the work at the time the bees would naturally be inclined to do it themselves.

It **pays** to let bees alone as much as you possibly can when they are inclined to rob; it saves their vitality and your temper.

Iowa.

INTRODUCTION OF QUEENS

By Allen Latham.

FEW things are more to be desired in beekeeping than an easy and cheap method of introducing queen-bees and which at the same time would insure 100 per cent of success. The trouble with the sure methods is that they are not easy and are expensive, while the trouble with the easy methods is that they are not sure. A. C. Miller would rise and ask: "What about the smoke method?" The smoke method and all others championed by their sponsors often fail in the hands of other people.

Personally, I am opposed to any method of introducing queens which subjects queen or bees to any hardship. Drenching in water, daubing with honey, smoking to a frenzy, all must have more or less bad reactions. We should have a method which, so far as possible, sticks close to the nature and happiness of the bees.

If one has a really valuable queen he should never take chances. Let him select a few frames of solidly sealed brood, brush all the bees off and set these frames in a bee-tight box with no air space—that is, let the frames fill the box except for bee-spaces. Turn queen and attendants loose in the box and place the box in a warm room or closet, covering it with blankets. After three or four days there will be several thousand bees out with the queen. It will be well by this time to allow more air through previously prepared wired openings. At end of five or six days set box on hive-stand and allow flight of bees. If no robbers are bothering, put the bees into their permanent hive. If robbers are bothering, soon close hive and wait a day or two more before allowing another flight through a very small exit. This is 100 per cent sure.

The next safest plan is that followed by many beekeepers of wide experience. Introduce all your queens to nuclei. Why it is safer to introduce queens to nuclei than to full colonies is a subject for an article in itself.

Prepare a nucleus for each queen and set this nucleus near the colony which eventually is to be headed by the queen. Introduce the queen by the cage method. After she is free and laying well, add to the strength of the nucleus by giving it one or two frames of sealed brood from the full colony. As soon as nucleus is well started destroy old queen and three days later join the two colonies. If the joining is done quietly without getting the bees to running, almost certain success will follow. The easiest way is to lift the parent colony from its stand and set it on the nucleus just at dusk. A day or two later the frames can be rearranged to suit one's desires. The nucleus method of introducing queens admits many safe variations.

If one runs for extracted honey and has three bodies on at time queen is to be introduced, there is a very simple method which usually works. Use two excluders, one below upper body and one above lower body. Place old queen in lower or upper body and set the caged queen in the other of these two. It is probably a little safer to place new queen in upper. When new queen is laying kill old queen and remove the excluders. This is not a method which I have tried on a large scale and I do not advise its general adoption until one finds that it works under his management.

These last two methods have the advantage that the old queen is retained alive and can be replaced if introduction fails. There is another method which has this advantage and which I have written about before. It has failed in the hands of several, however, and for that reason I am not saying much about it here, but will go over it briefly. Find and cage old queen. Place old queen and new queen over the top-bars side by side in such manner that the cages shut

the candy holes. (It is safer to cover the holes with tin at the start). Old queen is without attendants, new queen with. Next day remove attendants of new queen. Bees will feed both queens. Third day remove old queen and if no bees are clinging to the wires of the cage containing new queen, remove tin so that bees can liberate new queen. If bees are biting and clinging to the wires, wait one day more before allowing bees access to candy. To make absolutely sure you must now go over the combs and destroy any queen cells which show advanced work. All old queens can be placed in their cages over a queenless colony where they will be fed until you know whether you need them. Save only the best, as only a few will be needed anyway.

At this point I wish to go on record as saying that very few beekeepers are aware of how many queens are lost through the failure to destroy cells. Virgins and non-laying queens can be trusted to cut down all cells. A queen heavy with eggs cannot be depended upon to do this. A virgin emerges and not infrequently kills the new queen. What queen-breeder has not had scores of letters saying: "Queen came in good condition and I got her safely introduced, but now she has disappeared and the bees are starting cells." The bees start cells, for often they turn on the virgin after the laying queen has been stung and kill the murderer. Sometimes they tolerate the virgin and later on the colony is again queen-right.

I have been saving for the last the old method of introducing queens by which method more queens are introduced than by all the others combined. Kill the old queen and put the caged queen in the hive, and leave the hive alone for five days, at least. This is by far the easiest of all methods and since it is so generally successful will be used more than all others. Why is it not always successful, and how can we make it successful in all cases?

It is not always successful because the conditions in all colonies are not identical. It cannot be made always successful because we cannot be certain that the conditions are all identical.

Let it be said here that no matter what the method is, 9 out of 10, 99 out of 100 and usually 999 out of 1,000 bees would accept the new queen.

It is the tenth bee, the one-hundredth bee, the one-thousandth bee—that cussed bolshevist—which causes all our failures. The queen comes out of the cage and is being fed right and left and all is serene. In a few hours this queen will be laying. Along comes the bolshevist and grabs her by the leg. Mob spirit with bees is much like that in humans, and the bolshevist soon gets a following and then good-bye to the queen.

All our efforts should be directed toward eradicating the boleshevist. How shall we do it? This article is already getting on the nerves of the editor because of its length and I must be brief and to the point. Try the following procedure and see if it will not get rid of most of the bolshevists:

Remove old queen not less than 48 hours previous to placing new queen in hive. Remove all attendants from cage containing new queen. Do this by the window (closed) of the shop, and clip, if you desire, at the same time. Queenless colonies will have plenty of good Samaritans which will feed the new queen well. Place the cage in a warm part of the hive. I like to cut out a piece of drone comb or other imperfect comb and place cage there. One can mash down side walls of adjacent combs right over the brood and make room for cage there. One can mash down make doubly sure, first cover cardboard over the feed-holes with tin. Examine at 3rd day and see if queen is well fed and showing signs of preparing to lay. See if any bolshevists are clinging to the wires. Crush any such, but not against the wires. Remove tin now if you wish. The queen should be liberated by this method about the sixth day. A few hours previous to her liberation go over all the combs and shake the bees from them and cut off every sign of queen-cells. Replace and do not disturb for one week. At that time you may desire to open up and even then it is wise to look over the combs for cells which may bring disaster.

You say: "That means too much work and bother." Anyone who keeps bees must be prepared for lots of work or bother. They go with the business. Either do lots of work and bother or suffer many losses, Mr. Beekeeper.

SOME "WHYS" OF BEE BEHAVIOR

By Wallace Park, Iowa Experiment Station.

WHY do the bees of a colony rush forth so frantically when, during a dearth, a robber bee has returned home with her plunder? Why do bees sally forth from the hive, even in inclement weather, when feed is placed inside their hive? Why are bees so inclined to start robbing when fed during the daytime?

These questions involve a phase of bee behavior which, up to the present, has been shrouded in considerable mystery. Naturally all students of beekeeping have held that bees possess, to a marked degree, the ability to transmit information to their hive-mates. Some of the early writers even attributing to bees full powers of conversation comparable to those of human beings.

Methods of Communication

Communication by means of sounds as we perceive them, has never been proven for bees, although there is considerable evidence to indicate that certain sounds or vibrations are significant to them. Another supposed means is by touch, such as may be observed when two bees meet and strike each other's antennae. But at present only two methods have been positively identified, both of which are quite limited in their use and capable of fairly accurate interpretation.

Sladen's work, in 1901, showed that bees call their hive-mates to them by the emission of a peculiar odor from a gland located between the fifth and sixth dorsal segments of the abdomen. The recent work of Von Frisch in Germany and that of myself at the Iowa Experiment Station were reported in the May issue of the American Bee Journal, under the title "The Language of Bees." Our investigations were entirely independent of each other, but both showed that the peculiar "dance" performed at times by loaded workers is a definite means of communication.

Throughout the past two hundred years, various writers have mentioned the peculiar "dance" performed at times by loaded **pollen-carriers;** but so far as I am aware, none of them have mentioned this activity in connection with either nectar-carriers or water-carriers, although my observations and experiments show it to be fully as characteristic of them as it is of pollen-carriers. Almost without exception, these writers interpreted the "dance" as being performed by the pollen-carrier for the purpose of attracting the attention of her companions to secure their assistance in disposing of her load. But my experiments and those of Von Frisch show that, when the "dance" is performed those bees which approach the "dancers" soon leave for the field to search for the new treasure. Our experiments further show that the "dancer" is unable to tell others where the new supply is to be found.

When a Robber Returns

When a robber returns home with a load of stolen honey, her "dance" results in the hasty exit of a number of her hive-mates bent on locating the source of the plunder. Every now and then she ceases shaking her body and pauses long enough to pass out a sample of her booty to one or two of the interested workers who, after primping a bit, hurriedly make their way out of the hive.

After spending several minutes in the "dance," during the course of which she has given out samples to a dozen or more of her companions, she cleans her tongue with a long stroke of her front feet, rubs her eyes and is off for her second trip with the air of one who is about to be late to an important engagement. She is frequently followed out of the hive by one or more of the fielders.

Each bee that returns wth a load advertises her success after the same manner as did the first robber. In this way the news is broadcasted by ever-increasing numbers. No wonder the excitement increases so rapidly.

If the source of plunder is easily located, those bees that leave the hive in search of it get thir loads in a hurry and go home to send still others to help gather in the spoils. A situation of this kind would seem to explain why it frequently happens that one colony is the principal aggressor in robbing some other colony. But when the source located by the first robber is not readily found, some of the searchers are quite sure to effect their entrance into various colonies for they nose around every crack and crevice in their efforts to secure plunder. This may lead to the robbing of several colonies.

When Feed is Given.

The following demonstration, made before one of the classes in beekeeping at Iowa State College on June 6 of this year, will serve as a typical illustration of the behavior of a colony to which feed is given. It was a rainy morning and a good shower was in progress. At 8:55, syrup was given to a one-frame observation colony, in a feeder attached to the rear of the hive. Several bees obtained loads and by 9:05 were telling the news by their characteristic "dance." At 9:10 bees were rushing recklessly out into the rain, although the object of their quest was within their own hive.

Of course, in this case, the rain drove the bees back in; but suppose it had not been raining. What would be more natural than for them to search out some poorly guarded entrance and start a case of robbing? And suppose that instead of feeding one colony, we feed fifty. There is great activity at many entrances, the air is filled with the dreaded note of robbers, and weak colonies fall victims. Such turmoil is avoided when the feed is given so late in the evening that few bees will leave their hives.

Conclusion.

Whereas, we have been at a loss to explain why bees behave as they do under such circumstances as those outlined in this paper, we are now able to point out the "dance" as the means of communication and the activating cause of the excitement in the colony. And since the "dancer" is unable to inform others of the location of the supply, we can readily understand that the bees which rush out of the hive are going in search of it.

(The above conclusions are certainly correct. Whenever we see bees flying about the apiary, or nosing around the honey-room, we are sure there is robbing going on somewhere, and we are sure to find it, if we look long enough. Any old beekeeper will tell you the same thing.—Editor.)

ADVANTAGES AND DISADVANTAGES OF DOUBLED-WALLED HIVES

By J. E. Crane.

THE advantages to be gained by double-walled hives are not numerous, but important. First and most important is the safe wintering of bees. It matters little how numerous our colonies, or abundant the flow of honey, if our bees have wintered poorly or are half dead.

My experience during the past fifty years is quite conclusive that bees can be wintered in double-walled hives as sheep or cattle in our cold changeable New England climate. It is true we have sometimes met with losses, but this I believe has been, without exception, the result of poor stores, as honeydew, when bees would have died in the very best special cellar or repository. Indeed, I have wintered a yard fairly well when a large part of their stores was honeydew but where they were in double-walled hives well packed with insulating material, sides, ends, top and bottom.

Another very important consideration is the protection to brood in early spring. An average-sized colony can protect a much larger amount of brood in a well insulated hive during the cold, frosty nights of spring than in a single-walled hive, and our success will very much depend on the amount of brood our bees can mature during the spring months.

Another advantage these hives possess is that they protect the bees from the excessive heat of summer. Packing that will keep the bees warm in winter will keep out the heat in summer. One of the objections I had to adopting them was at first what I thought the necessity of removing the packing in the spring at the ends and sides of the brood chamber, but I soon learned that the bees felt the severe heat of midsummer less if the packing around the sides and ends of the brood chamber was left on.

It cannot be denied that there are some disadvantages in the use of large double-walled hives. In the first place, I think they are nearly twice as expensive as single-walled hives. They are larger and more clumsy to handle. Again, you cannot readily pile one on top of another as you can single-walled hives, especially where they are packed on the bottom. Speaking of packing on the bottom reminds me of my early experience in packing hives for winter. I began fifty-one of fifty-two years ago by placing insulating material over the top of hives and tried wintering in this way, and it worked so well that I thought it would be still better if the hives were packed at the sides and ends and found it to work even better but I was not satisfied. I thought the hives would be still better if protected on the bottom also, and between 1870 and 1880 I had made one hundred hives so as to use about two inches of insulating material in the bottom.

Now, while there is little question but that it is an advantage to insulate hives on the bottom, the gain is not so great as one would be led to expect from reading U. S. Agricultural Bulletin No. 222, by Dr. E. F. Phillips, on "The Insulating Value of Commercial Double-walled Beehives." It is, however, much more noticeable in some years than others. Where hives are set close to the ground with a heavy fall of snow there will, I believe, be found little difference between such hives and those without bottom insulation, the snow answering the same purpose. In other years the difference may be very noticeable, especially if bees have to winter on poor stores. Some thirty years ago bees in my yards gathered a large amount of honeydew late in August and early September. In my home yard, where hives were without bottom insulation, I lost more than one-half of the colonies and one-half of those left were so reduced in numbers as to be of little value. In a yard three miles away where an equal amount of honeydew was gathered, the loss was comparatively light, not more than fifteen or twenty per cent, and those that wintered were strong enough to build up and amount to something, at least the most of them. This yard was mostly in bottom insulated hives. We had a similar experience three years ago, when bees were fed on dark sugar syrup for winter stores. If I were building new double-walled hives I should provide for bottom insulation, as the extra cost is trifling compared to its value. I notice that trays are highly recommended for holding insulating material for the top of brood chamber. I began by putting insulating material in loose on top of brood chamber, and then changed to trays, and later discarded these for large burlap sacks or cushions. These sacks can usually be bought for from 3 to 5 cents apiece and when filled, not too full, can be more readily handled than trays.

I have used a number of different things for packing, as chaff, sawdust, leaves, planer shavings, etc. We prefer the last, if fine. Leaves are very good when well dried and somewhat broken up.

Large quadruple cases are being recommended these days and there is no question but that such cases will winter bees successfully, but it has seemed to me they would require more work to set up and take down and dispose of the packing material in fali and spring than with double-walled hives. With double-walled hives you have, when preparing for winter, only to adjust the entrance, reduce the size of brood chamber if needed, add a little packing at sides, and perhaps at the corners, and lay

on your cushion and tuck it in so no heat can escape, and the work is done. I have never used but two large cases. Bees have wintered well in them, but I think if I were starting new I should prefer the double-walled hives to quadruple cases.

Since writing the above I was talking over with our foreman on the value of bottom insulation and he called my attention to an outyard where the loss was very heavy three years ago where the bees were fed on dark sugar syrup. There were in this yard one hundred double-walled hives. Twenty of these were insulated on the bottom, while eighty were insulated or packed on top, ends and sides only. The loss was confined largely to the latter, while the loss in the bottom insulated hives was very small.

DOUBLE-WALLED HIVES

By Frank C. Pellett.

The article on double-walled hives by J. E. Crane, in this issue, is worthy of more than passing notice. Fifty years of trial is sufficient to give confidence in the statements of a writer of Mr. Crane's extensive experience. He states in a private letter that he has had about 600 double-walled hives without bottom insulation and 300 more insulated on the bottom also. After this long period he recommends the double-walled hive without hesitation for as cold a climate as that of New England. My experience has been small compared to that of Mr. Crane, but it has been equally satisfactory. In the same yard in Iowa I have secured better results in wintering in double-walled hives than in heavy packing cases. Where sealed inner covers were used, the results were unsatisfactory, but with a hole one inch by four in the inner cover and the big outer cover filled with leaves in burlap bags to absorb excess moisture, results were very good. I have used a few of these hives on my farm in northern Nebraska, where the temperature drops to 30 or more degrees below zero on a wind-swept prairie, for a period of five years with hardly the loss of a colony.

In traveling about I have found that the few beekeepers who have given double-walled hives an extensive trial are uniformly favorable to their use. One beekeeper winters about 300 colonies outside, in Michigan, and seems convinced that there is no better way. Beekeepers as far south as San Antonio, Texas, have expressed themselves as equally well pleased, saying that the extra spring protection amply justified the cost. Most of those who condemn the double-walled hive have theoretical reasons only, and have not given them a fair trial.

While the first cost seems high, it is still below the combined cost of single-walled hives and packing cases. In my experience the loss in severe winters has been heavier in the packing cases than in the insulated hives. If beekeepers generally had a proper appreciation of the double-walled hive the sale would be much greater.

LIFE OF MISS R. B. PETTIT

A Tribute of Appreciation From Her Brother.

By Morley Pettit.

"SHE was a wonderful woman." This tribute from some expresses the sentiment of all who knew Miss R. Beatrice Pettit, who departed this life on February 26th, 1923, after a very brief illness from influenza and pneumonia.

Rachel Beatrice Pettit was the daughter of Sylvester T. Pettit and his wife Abigail De Witt Pettit, both of United Empire Loyalist stock. She was born at Belmont, Ontario, and educated in the public school and at Alma Ladies College, St Thomas, Ont. After graduation in the collegiate department of that college she

Miss R. B. Pettit

accepted a position there as instructor on commercial subjects and studied music for some time, then prepared herself for graduation in art, including painting in oils, in water colors and on china, doing the work in spare time when she should have been resting from teaching duties. Miss Pettit enjoyed the art work very much, and it gave her a treasure house of material from which to choose for home decoration. It was during this period that she "mothered" the present writer while he was attending the Collegiate Institute in the same city. It was his first experience away from home, and a brotherly tenderness grew up between the two which ripened later into a life partnership in business and bachelor home.

After graduation in art, Miss Pettit came home for a rest, then spent a few years acting as private secretary for her older brother, Hermon, in his milling business at Comber, Ont. Her mother's failing health called her home again, and when the present writer came back from University pretty much run down in health she nursed him back to strength again.

It was during those months at the old home that the plan was formed of a beekeeping partnership which was only dissolved by the misfortune of last February. There were some eight odd colonies in the first apiary which came into our possession in time for the season of 1900. The idea of a woman engaging in commercial beekeeping was not common at that time and Miss Pettit looked after the home and accepted private pupils in painting to help out on finances until the business got on its feet. But her interest was keenly with the bees and in later years two early experiences seemed to stand out most prominently in her memory.

The one was "our first quarter." After about eight months of financing on the hope of a honey crop the first sale of honey was made and the beekeeper member of the firm came into the house jubilantly tossing and catching the 25-cent piece which he had just received. It was a welcome harbinger of financial relief and a token of the fact that our business venture was really on the way. The other was her first real live experience with bees. The beekeeper had to be away from home in winter and left instructions about regulating the temperature of the bee cellar. Miss Pettit was to climb down a ladder into the darkness, knowing there were millions of bees carrying on their little lives all around her. The word was that if they were quiet all was well, if there was a restless hum or roar they were too warm, if they buzzed slightly with a shivering note they were too cold. At different times she heard these different notes and gave the n as best she could what they seemed to be asking for. It was her awakening as a beekeeper.

It was not long after the first cellar experience that Miss Pettit took charge of what remained of the bees of the firm from the dispersion which took place during the first years of the beekeeper's tenure of office as provincial apiarist. Some colonies had been sold and others had died from neglect. About one hundred colonies remained and with no experience but that of the cellar, and with the help of two young men who knew less than she did, Miss Pettit undertook their management. Her brother tried to tell her what to do from day to day, but instruction in practice without experience is dry stuff, and often words were not interpreted as meant. Even such fundamental knowledge as the correct use of the smoker comes largely by practice, and long afterwards she admitted that during those first strenuous days before learning when to and when not to smoke, her delicate fingers were stung until they did not feel the stings.

If Miss Pettit had been content to

keep one apiary and watch for swarms her start in beekeeping would have been easier in a way. But she was never satisfied with an easy road when a more difficult way meant greater achievement. From the very first she studied swarm prevention, and went over brood chambers thoroughly from week to week. A fair crop of honey was harvested and one would think that for a woman beginner results were quite satisfactory, for the first year at least. She realized, however, that to make a real success of beekeeping, without a man's strength, she must keep enough bees to make it profitable to hire help. Accordingly she seized an opportunity to buy a second apiary of eighty colonies about the middle of the first summer, and the fact that this apiary was 150 miles from home did not prevent the purchase, although it was necessary to travel back and forth to care for the two yards.

Next year the two yards were moved to within easy distance of each other, and in going over the season's work for the second time Miss Pettit began to really find herself as a beekeeper. Instead of trying to do just as she was told, with almost a feeling of working in the dark, she saw the way open up before her and experienced the joy of making manipulations and watching results with increasing understanding. There was no item of the work which she did not learn by doing until she saw fit to delegate it to a helper. She had power from the start, so never cranked an extractor, but she did crank an engine, at first, on occasion. She also found time when it was convenient to know how to use a circular saw; but some fingers got cut, not hers, of course and after that the saw was in disgrace, the very wise decision being that a beekeeper's fingers are so valuable that he should not take unnecessary risks of losing them. Early in the day of automobiles she adopted this convenience which we now consider indispensable, but which at that time was still a novelty. When the business and home were permanently established at Georgetown, Miss Pettit's use of a car along with her management of nearly three hundred colonies of bees created a sensation which found expression in the local news that "the bee woman had two automobiles and a team of horses." She even drove the truck occasionally, which came as a later addition to the equipment.

After swarm prevention and general management the first subject which Miss Pettit took up seriously was queen rearing. She made Doolittle's Scientific Queenrearing the foundation of all her work in this line. About that time Dr. Clark, who was associated with Doolittle in business, lectured and demonstrated at the Beekeeping Short Course at Guelph, Ontario, on this very important, subject and she got all she could from him. By careful experimenting and by reading everything she could find on the matter, Miss Pettit developed a very successful system of rearing queens and of introducing them. She was frequently asked to write a description of her system for publication, but always felt that there was something that needed perfecting by another season's trial. Now, unfortunately, it will never be written, and the writer confesses with deep regret that while he realized to the full the importance of requeening properly, he was always "too busy" to take lessons in some of the most essential details of the process, and will have to work them out alone.

When it came to disposing of the honey crop, Miss Pettit was never satisfied to let the wholesaler have his usual profit on what she had worked so hard to produce. She tried numerous experiments in advertising and selling direct to the consumer, or to the retailer. Eventually, in cooperation with the brother, a mail order system was developed which worked very well, disposing of crops up to 94,000 pounds. In this, perhaps the most important feature was attention to quality in production, all along the line from careful separation of colored honey from the clover before extracting to clean bright containers and bright new crates carefully kept from the weather. Then she made it a point to keep a personal touch with her customers, using personal letters in many cases instead of circulars.

During the last five years, 1918 to 1922, inclusive, the writer was free from public duties and devoted his whole time to working side by side with Miss Pettit. Some kind friends in offering sympathy have referred to his "helper." This is a mistake. One was no more a helper than the other. It was a true partnership if ever there was one. Day by day and evening by evening during the active season, principles and details of management were the chief subjects of conversation. Miss Pettit was conservative and careful about new methods or expenditures; her brother was often the reverse, so a balance was maintained. Of the contributions which her thinking and experimenting brought to the system of management one of the best was brought very early in her experience. While trying to remember what she had been told about supering she reasoned that when colonies were bringing in ten to fifteen pounds of nectar daily it would not take them long to fill a super, and decided that about as soon as work started in one super another should be added. This was far from the orthodox teaching of the day, but it brought very satisfying results.

One of the most successful woman beekeepers, Miss Pettit never cared to pose as a "woman beekeeper." Although truly feminine, it was her desire to be a beekeeper among beekeepers, and as to how well she succeeded her many friends in the beekeeping world will testify. She was a devout and earnest Christian and active in all good works.

Georgetown, Ont.

AMERICAN FOULBROOD

By Jay Smith.

I firmly believe American foulbrood is the one great hindrance to beekeeping. American foulbrood prevents the economical production of honey on a large scale. It is one of the big features in injuring the sale of honey.

Did you ever dream of a Paradise where there was no bee disease, where you could have thousands of colonies scattered in different yards, so that all you had to do was give them a large broodnest and young queens, put on supers and take off honey? But if you attempt to dream of that under present conditions, your slumber will probably be somewhat disturbed by visions of a colony dying with American foulbrood, and your apiary in an uproar as the bees rob out the diseased colony! Just imagine how you would feel! But please don't mention what you would say!

Do you have to be content in keeping a less number of bees, and fighting disease as best you can? Must this expense be passed on to the ultimate consumer or borne by yourself in your lessened profits? But many will ask, "How does it interfere with the sale of honey? Are not you arguing, rather than stating facts?" No, siree! I am not; I am giving the honest-to-goodness truth as I see it.

First, let me give my personal experience in this matter; and from what others have told me, I am satisfied that thousands of beekeepers are doing exactly as I did.

Years ago, before I went into the queen business, I produced honey. I soon found this was not a good honey producing country, and our market called for more honey than my bees could supply; so I brought honey from the outside. Of course, the party from whom I bought this honey assured me he had no bee disease; but later, to my sorrow, I found this was not true, for he not only had it but he donated some of it to me. Knowing our locality was free from the disease, and being myself ignorant of it, the disease got a good start. This is not to be wondered at, for it had my hearty co-operation in the matter. I helped it increase and multiply and replenish the whole dog-goned apiary. I made big increase that year, and not knowing American foulbrood was present, of course it increased, too.

Then, with the able assistance of our inspectors, I learned my ABC's of bee disease, and began a battle to the death. I knew that either American foulbrood or myself was going to get licked, and that it was not going to be me. I carefully inspected every few days. I certainly did not spare the torch. After three years of fire, I won. It probably cost me about a thousand dollars; but the experience was worth what it cost; though, if one asks you, tell them that I do not want another thousand dollars' worth.

Now listen, friends, while I give the moral of this story: I did not buy any more honey for ten years;

no, not on your life. I reasoned that if one fellow would lie about not having American foulbrood, was it not possible for others to do likewise? During the years that have intervened, I probably could have sold a number of carloads of honey, for we had a splendid trade built up. Other beekeepers all over the United States have refused to buy honey when their own supply was exhausted, for fear of bee diseases, and I am quite sure many, many more cars of honey could be sold each year, if there were no American foulbrood in existence.

Now, what are we going to do about it? In the first place, more drastic methods should be employed in the control of this disease. I have little sympathy for the beekeeper who has American foulbrood, has had it for years and says he doubts whether he will ever get rid of it. Such a beekeeper is doing more harm to the community than good, for he is continually scattering the disease. If one person can clean up, so can another, and he should do it. Of course it will cost him some colonies; but he has no moral right to injure other beekeepers. I know of one beekeeper in California, who produces extracted honey and has about one thousand colonies. He found himself with one or two cases of American foulbrood. He shook the bees and put the combs in the honey house to be destroyed later. An incompetent helper put these combs out for the bees to "clean up," which, of course, they did readily. The disease was spread. This man is very business-like and particular. He shook all colonies affected and melted up **every extracting comb.** He completely stamped out the disease in one season.

Many counties in Indiana, once badly diseased, are now disease free. Years ago, our own county of Knox was badly affected; but with the assistance of the State Bee Inspectors, the colonies were treated or burned, so now we have no disease in the county and can no longer hold demonstrations as to methods of treatment, since we have no diseased colonies to treat.

Before a person can ship queens, he has to have a certificate of health for the shipping cage. This is as it should be; but as it has been advocated that the gander and goose partake of the same kind of sauce, why not ask the honey producer to cooperate in this matter? Why not ask him to put a certificate of health on every can of honey he sells? If he cannot put on such a certificate, then let him put on a label reading: "This honey is from an apiary infected with American foulbrood."

Those who buy honey have certainly a right to know what they are buying. I am of the opinion that if this were required, all beekeepers who had disease in their apiaries would get a move on them and clean up. Let us be consistent. At present a beekeeper who has American foulbrood can ship diseased honey to anyone right by a queen rearing yard. The empty can is thrown out. Disease breaks out in the queen rearing yard. The beekeeper who gave the queen breeder the disease says, "you can't ship any more queens. You might spread disease among us honey producers." Now, what do you think of that?

I believe no bee should be shipped on combs. In Michigan, as rapidly as they clean up an area, I understand a ban is placed on bees on combs or honey candy. This is fine. It is as it should be. Something similar is being done in Canada. Cage candy made without honey can be easily prepared. It is in every respect equal to the best honey candy. I gave this receipt in the American Bee Journal, October, 1921. This bee feed is easy to make and keeps soft indefinitely. We make it in winter for use the following summer. It is very gratifying to note, moreover, that many queen breeders are using this queen cage candy without honey. Many package shippers are using sugar syrup with perfect results.

B. F. Kindig, Director of Apiaries in Michigan, has had a wide experience in control of disease and shipping packages and queens. He informs me that he considers queen candy made without honey every bit as good as honey candy. He says that he is unable to understand why a shipper of bees and queens should continue to use honey in candy at all.

Now let us all get together and "push." American foulbrood can be eradicated from a colony, from an apiary, from a county, so let us decide to eradicate it entirely from the state in which we live, and then from the country. Let us all help, and see what we can do, and how quick we can do it.

Vincennes, Indiana.

THE HUBER LETTERS

The Bees of Mexico

(Continued from July.)

While I occupy your interest, my dear Elisa, with the insects of the New World, which we have known through a celebrated English traveler, Captain Basil Hall, my main aim will be, as always, to put under your eyes some of the marvels of Nature which I have been permitted to observe, and especially the variety of means which Nature employs to attain her aim. You know what my desire was when I spoke to you of the bees; the beings which are now in question which are indigenous to Mexico, owe to their resemblance with our own honeybees and their products to be called by a similar name.

Upon the reading of the work of Captain Hall, which interested me deeply, I noticed, however, some dissimilar features, which caused me to doubt whether my new acquaintances were really bees. With the help of a few friends and some of their correspondents in Mexico, I was able to import from Tepico some bees taken from hives similar to those that the observer whom I have mentioned had examined. This first attempt failed completely, on account of the very precaution taken to insure its success. Our correspondent had drowned all those bees in the liquid which ought to have secured their preservation. The bottles, carelessly closed, allowed the liquid to evaporate, and the length of the trip joined to the heat sustained, caused all those little beings to ferment and putrefy without exception; not a single one reached me that might have been recognized by our best anatomists. Mayor helped my son in this occasion and was no luckier. Mr. Basil Hall having noticed that the Tepico bees had stung no one when their hives were opened, took it for granted that they had no sting, but this did not seem to me to be sufficiently proved.

For that reason I did not abandon the idea of doing all I could to ascertain so important a point; this was the purpose of my second attempt. You will hardly believe that I was indiscreet enough to try it over with such new friends and to ask them to serve my fancy once again.

Veri sacra fames quid non mortalia pectora cogis!

(Holy love of truth, how you lead the hearts of those who feel your charm!)

Far from being discouraged by the ill success of the first attempt, I depended upon their kindness so far as to ask them to buy for me a Mexican hive and send it to me as soon as possible, without disturbing anything in it, leaving it just as it would be found at the time of departure. Here is something that you may have difficulty in believing, but which is, however, true: I forgot to recommend not to close the hive and to leave the imprisoned bees a free access of air, under penalty of seeing them asphyxiate and perish miserably. My Mexican friends thought of it no more than I did, the hive which I had asked for was purchased, shipped to Europe, addressed at London to J. L. Prevost, who received it, unpacked it, opened it with my permission; but seeing that the entrance had been solidly closed, he feared that which had happened, that the bees were dead. Legions of mites were the only living beings that he saw in this hive and which we found also in it on its arrival at Yverdon. Excepting this, my son found everything in the best possible condition and exactly as had been seen and described by Mr. Hall. I will soon send you the narration of this part of his voyage. You may then believe, as if you should see it yourself: 1. That the bees of Tepico gather as much honey in Mexico as our bees do in Europe; that this is fully as good and more aromatic than that of our real honeybees; 2. that they know how to convert a part of it into beeswax and produce considerably of it; 3. I tell you farther what they do with it. In regard to this the inhabitants of that country are as well off as we are. You may think they are even better off, when you learn that I was lucky enough to confirm the conjecture of the first observer and to ascertain its

truth. As Mr. Hall has observed, the bees of Mexico are deprived of sting, or of any offensive arm. One may, therefore, observe them without danger and take away their treasures without cost. You are too fair, my dear Elisa, not to take interest in these strangers and admire the ways in which Providence makes them worthy of your interest and of the regard of the inhabitants of another hemisphere. The sequel of this letter will tell you what I was able to see besides. God be with you, my dear children.

(Notice of Mr. Basil Hall relating to bees which he noticed in Tepico and of which I find an account in the second volume of his voyage to Chili, Peru and Mexico (page 238) in 1820, 1821, 1822. The author was an officer in the Royal Navy; it was under its orders that this voyage was undertaken).

"From the market square, we went to a house where there was a hive of the native bees, which they opened in our presence. The bees, honey and the hive differ much from those of England. The hive is usually made of a hollow log, two or three feet long and eight or ten inches in diameter, hollowed out and terminated at the ends with circular openings, carefully closed with wood, though opened at will.

"Instead of this coarse wooden container, some people have cylindrical hives, in baked earth, ornamented with figures and circular rings. These hives serve as ornaments on the porches of houses, to the roofs of which they are suspended with ropes, in the same way as the wooden hives are suspended in front of the village huts. On one of the sides of the hive, half way between the ends, is a small hole, large enough to permit a loaded bee to pass through, with a sort of portico to shelter the hive from the rain; this hole usually resembles the mouth of a human being or some animal, the head of which is shaped in relief upon the hive.

"One bee is entrusted with a duty which is not all profit. She is constantly at the door, which is so narrow that when a bee enters this one goes either inside or outside and at once returns to her post. Experience has proven, they told me, that the same bee remains at this watch the whole day.

"When the weight indicates that the hive is full, they remove the end and take out the honey. The hive which they opened before us was not entirely filled which permitted us to examine its inside more freely. The honey is not placed in hexagonal cells as in our hives, but in wax bags not quite as large as an egg. Those sacks or bladders are suspended around the sides of the hive and appear to be about half filled. It is probable that the quantity is for the purpose of the wax being able to sustain the weight without breaking down. The sacks placed at the bottom are stronger and consequently better filled than those near the top.

"In the center of the lower part of the hive was an irregular mass of combs built with cells similar to those of our bees and in which the young bees were resting, which appeared to be already strong. They removed these cells to liberate them and they took flight. While we were examining this hive, someone removed the combs and the honey. Confusion was seen among these little folks, but not one of us was stung, although our hands and faces were covered with them. There is in this same country a meaner race; but the kind which we saw appears to have neither the will nor the power to do any harm. Our friends told us that they were always "may manso," very tame, and that they never sting. The honey has an aromatic odor and in taste differs entirely from that of our climes.

"Description of the Domestic Melipone: The bees of Mexico are of the genus Melipone; their head is somewhat square, their body rounded and hairy like that of our bumblebees, and not angular like that of our domesticated bees. When we look at them from the underside, there are some inconspicuous bands; their size is one-third less than that of the European bees; however, they secrete wax, but probably in the manner of our field bumblebees.

"They have pollen baskets and the brush, but they do not have the spur which serves our bees to extract the wax plates, as they do not need them.".

You may not think me heedless when you hear that I was not the only one who had planned to bring into Europe some interesting beings which it would have been difficult to observe in their native country. No, others have had similar ideas, but it is our own bees which they have dared to take to America. They even claim to have succeeded.

Miss De Vegobre, who allowed me to talk to her of everything that interested me, said to me one day that it would not be very difficult to have bees sent to us from Guadalupe, to compare them with ours and see through this first observation whether the ones were similar to the others and might have originated from the same country. Thanks to this good friend, few months were required, by the person who accepted the trust, to bring to me in Geneva a few hundred bees taken at the entrance of Guadalupe hives and which turned out to be in every part similar to those of our own hives. It is on that account that I thought I might hope that Mexican honeybees could be brought here as readily as those of Europe had been imported into America. To make sure of it, however, it was necessary to make the test. I trust for this in the young observers who may feel the need of it.

(To be continued).

TRANSFERRING TO MODIFIED DADANT HIVES IN A CINCINNATI SUBURBAN BACK-YARD APIARY

During the last week in April when the ten-frame Langstroth hives became crowded with bees and brood, I transferred to Dadant hives by raising the brood chambers above the large Modified Dadant hive bodies equipped with full sheets of wired foundation and slipped a queen excluder between to keep the queen below. Today, five weeks later, those 10-frame Langstroth supers are filled with fruit bloom and black locust honey and the queen laying in six frames of drawn foundation below.

This is remarkable, considering that we have had two days of snow since the transfers and a cold day in general with our real source of surplus white clover flow just about to start. J. R. Schmidt.

Schmidt's bees transferred into Modified Dadant hives with the old Langstroth hives still used as supers.

USING WANT ADS TO SELL HONEY

By John T. Bartlett.

IN a recent investigation covering classified advertisers in many fields, the writer brought to light repeatedly principles and methods of importance to the honey advertiser. Of all the ways open to the advertiser to secure regular honey customers, the want ads are one of the most economical. Here, as elsewhere in business enterprises, however, there must be the adaptation of method to individual situation. "A Want Ad is only a Want Ad," but as much thought can be put into its framing as into any display ad.

Several beekeepers of Denver regularly use the Want Ad sections. A typical Want Ad runs like this: "Best extracted honey, 10 lbs. for $1.50; bring container." That little message has no frills, but it is a pattern for all honey producers to go by, in certain respects. It heeds one of the great classified advertising principles investigation reveals again and again in association with Want Ad success. That principle is the use of an apparent bargain price to make sales.

Every reader knows that "10 lbs. for $1.50" is a bargain price. It is not a give-away price, but it is considerably lower than stores commonly sell for. (Colorado prices are lower than farther east.—Ed.) A Want Ad succeeds best which gives the reader a strong incentive to buy. A bargain price is that incentive. Since beekeepers nearly always can offer the price inducement, price should be mentioned nearly always in a honey Want Ad. A bargain price Want Ad will probably outpull any other that a honey producer can write. (Price cutting is a dangerous business, as others may cut still more.—Ed.)

This beekeeper used a medium costing around 20 cents a line. Economy dictated that he should use a brief Want Ad. He got it with a statement concerning the quality of the honey, and a quoted price. Note that he tried for a large sale. A few 10-lb. sales would take care of his advertisement cost. Further, while a reader might not be willing to go far to buy a single pound of honey, he likely would for a 10- pound purchase. The suggestion to "bring container" made the selling method still more economical, inasmuch as the advertiser wasn't under container cost.

After all, the final test of any advertising is, "Does it pay?" This brief little Want Ad described has paid. For many months it has been used regularly, securing new regular customers and selling hundreds of pounds of honey for the advertiser.

Most successful advertising experience begins with the explorational or expert mental stage, and passes to the money-making stage. In the first period, the honey producer tests out methods. He tries a slant which appeals to him. Quite likely he doesn't hit the target the first time but, if he is persistent, he studies what returns he does get, learns what "pulls" and then, if he is wise, sticks by it.

Experience with Want Ads is likely to follow such a course, but if maximum thought is given initially to the matter, the journey to the money-making stage will be shortened. Here are several principles to be heeded:

Location will probably determine whether the beekeeper puts a delivered price on his honey, or sells at the farm. In an inconvenient location, either off good highways or a long distance from car lines, a Want Ad which makes a bid for orders to be delivered is probably best. In such a case, the quoted price can be somewhat higher than a farm price. Prices are probably best quoted on several size containers. The advertiser should give his phone number, also his address. It is a mistake to omit name and address. The beekeeper is in business to stay in business. He should advertise his name and address in connection with honey whenever he has opportunity. A Want Ad which offers at a delivered price quite often produces some sales at the farm.

If location is very convenient, and the Want Ad features an "at the farm" scale of prices, the pulling power of the advertising will increase if the convenience of the location is played up. "On paved highways," "only 10 minutes from Civic Center," "Take car line 54 to New Street; walk two blocks north," and similar matter is good in Want Ads.

Prices are always a sensitive matter. Human nature is to plan to get all one can, and there is grave danger of asking such a price that the incentive for the customer to buy direct is not adequate. Further, what one beekeeper can build up profitable patronage on, another cannot. The man who is able to build a reputation for the quality of his honey can sometimes get pretty close to store retail prices. An at-the-farm seller in a very convenient location can get higher prices with greater ease than the far-out seller gets his low prices. Pricing calls for good judgment.

Adjectives descriptive of price, such as "very reasonable," "cheap," "bargain price," etc., make a Want Ad much stronger than the same wording without them.

"Follow-up" is much more important with Want Ads than the novice pauses to consider. In fact, unless a strong effort is made to turn single-order customers into regular customers the advertising may not justify itself. New customers come high, for practically any business. One of the baking powder companies states that it costs $1 to sell a new customer the first 35-cent can. It is only because it holds new customers that it can richly afford the splendid advertising to get them. For the beekeeper, ability to hold new customers, selling them again and again, is a large part of the secret of successful classified advertising.

This means that when a beekeeper makes a sale to a new customer, he should invariably obtain name and address. Later, through phone solicitation, a strong effort can be made for a second and later sales. Old customers are the backbone of most any successful business; but they have to be secured, in the first place, and for the beekeeper selling honey direct, the Want Ads are strategic aids.

Colorado.

CHINESE BEES

By Edward Blandford.

(Continued from July)

WE find the Chinese bees very difficult to move from one place to another. They persist in returning to their old stand to the last. Most of the instructions given in bee books, dealing with swarming, etc., fail to work out here. Say, for instance, you hive a swarm in a new box, place the old hive at the side, and later remove the old hive to a new stand. Well, if you want to start fighting and robbing, this is the best way of doing so. After a day or two, under any and all conditions, Chinese bees seem to refuse to receive their own bees back into the hive again. They lose their scent in one day and are attacked as robbers. When once robbing gets a start, the fight is brutal, thousands are slain.

Apropos of robbing, our bees are very clever at this work. Close down the hive, put them away in a dark room, throw a carbolic sheet over them, pile up and cover them over with wet grass, change the hives, drown them with water, sprinkle them with flour, anoint them with kerosene or lavender water, peppermint or cloves; after a day or two bring them out again from their dark cellar, put them on any other stand you like, and they begin to fight all over again. I have removed hives a mile away, and after a fortnight or three weeks, brought them back again, and the first time they were able to fly they made straight for the old hive and set up a fight again. Alas, these little creatures, which we love so much, are most erratic, and you cannot tell from one day to another what they will not do. How often we have come to inspect our hives, only to find one or two empty. The queen stops laying, and as soon as all the brood is out, away the whole family goes. They will stay in their hive, or leave their hive, brood, honey and all, according to their own sweet will, just as they please. We are yet unable to account for this strange behavior. One thing they are sometimes very fond of doing: A swarm comes out, you hive it, nectar is coming in with a rush; if not you feed it, and place it anywhere in the garden. Nothing will satisfy that swarm until the bees have gone to the old home, entered the original hive, and robbed it of every bit of honey it contains. The only thing to do in this case is to unite them again, and all goes on merrily. I suppose it will take some generations before the Chinese bees are really "educated."

Everything is upside down in this country, bees included.

Another peculiarity of these bees of the Orient is that they apparently dislike to receive the European queens to reign over them, or even to amalgamate with the European bees. Once we did succeed in adopting Dr. Miller's "safe way of introducing. (See One Thousand Answers) but as a rule, this plan fails. The bees, as they emerge from their cells, leave the combs and cluster in one corner of the hive, or down on the wire frame dividing the two hives, leaving the queen to run about the hive by herself. You can never be quite sure what will happen. We once tried uniting a colony of Chinese bees with Italian bees, using the sheet of paper plan. Well, the queen disappeared the next day, and the bees decided to live apart, Chinese bees in the bottom story and Italian bees in the top. We mixed them up together twice, but they separated as before, until at last, the Italians, little by little, disappeared, and the Chinese bees settled down and turned their attention to laying eggs and raising drones.

A plan of our own for introducing European queens to Chinese bees which we now adopt and proved successful, is as follows: In a small wooden box, with wire netting on one side, we place a piece of comb about six inches square; one-third filled with honey, partly sealed, no brood. By the side of this we place the traveling case, containing the queen and her escort, first lifting one corner of the wire to allow the bees to come out into our box at their pleasure. At the same time we drop into the box about forty Chinese young bees, not more than a few hours old, and to which we add more now and again, until we make a cluster of about two hundred in about twenty-four hours. This we place in an empty hive body, with a wire bottom, over a strong colony. Two days later we take the lid off of the wooden box, adding at the same time one frame of brood and one frame of honey. The bees soon leave the box and cluster on the combs. We then remove this hive to a new stand. As soon as the queen begins to lay and brood is hatched, the Chinese bees gradually disappear and all goes well.

Our bees make very little propolis, but plaster their frames with a yellow wax which is most difficult to deal with. They waste no end of time and strength fixing their frames tightly together. The one place they like to operate is on the top of the frames. They appear to like a space above them, between the frames and the honey board, so they gradually raise up the honey board, or cloth covering, and build little tunnels across the top of their combs. They are also very clever at building their combs **up** as well as **down.** They cap their honey with a very white wax, I might say pure white, which adds greatly to the appearance of section honey. But woe betide you if sections or combs are left in the hive too long; then a second or third capping is put on, which, of course, is most objectionable. Sections left on the hive for more than a month turn black, green and different colors in turn. Brood combs perish very quickly—simple turn to dust if left in the hive or anywhere too long. We prefer the Chinese bees to build new combs every year.

Our principal source of nectar in this province is from rape, buckwheat and smartweed. In February and March, and on into April, we expect to get a surplus from rape. Buckwheat and smartweed give us a good supply of honey in the autumn. If properly managed, we do not need to feed our bees to take them through the winter.

Our enemies are many. The wax-moth, hornets (the same species as described in the November number of the Bee World for 1922, by Mr. Yasuo Hiratsuka of Japan), wasps, ants, death's-head moths, toads, birds and mice. The first two are very difficult to manage. During the months of April, May and June, all combs must be examined every ten days, whether in the hive or out of it, the floor boards swept and made clean, and the hive body thoroughly examined inside and out. We sweep our floor boards once a week. The Chinese bees, like the Chinese people, are careless about keeping their floors clean. A few square inches in the middle of the room, immediately in front of the entrance, is all that troubles them. In the pile of debris on either side, and at the back of the hive, the wax worm finds a good cover. We lift these worms out in handfuls and crush them with our feet.

The first summer I went away to the hills and left my hives for two months. When I returned again, the hives were there, the bees were missing. Only a skeleton of the combs remained, and the frames and sides of the hives were covered with cocoons. I counted thirty-seven on one frame, the work of two months.

The Chinese hang their tubs on the side of the house, under the eaves, with a piece of bamboo net work, or in some cases, without anything to cover the bottom of the tub. All refuse, dead bees, etc., fall to the ground.

Hornets are a great pest in the autumn. We need at least one or two boys or girls on duty the whole time, and with an American fly swatter they bring them to the ground by the dozen. The sting of these hornets is venomous.

As to hives.—We have all kinds in our apiaries, British, American, German and Chinese. By Chinese I mean the ordinary tubs in use in this district. For special breeding purposes, raising queens, etc., and for comb honey, we find the British hive the best, but for lots of bees, and lots of extracted honey, perhaps the American hives do better in this climate. We use all single-wall hives, and winter out doors. Waterproof coverings, top packing, and a good wind break are all we seem to need.

Our foundations we receive from America, England and Japan. If the Chinese bees prefer one kind to another it is the Japanese. I judge that this is owing to the fact that if anything, the cell is a trifle smaller. We are now trying aluminum combs. The bees are slow to start work on them, but in time I have no doubt they will do better. Perhaps we have yet to prove that all the cells, whether of aluminum or wax foundation, that come from abroad, are too large for Chinese bees, hence the excess of drone brood in some of our hives. We find the aluminum combs, as far as we have tested them, the very best for this climate. Of course, the Italian and Carniolan bees take to them at once.

We are in receipt of beebooks and bee journals from all parts of the world. We have read and studied everything that we can purchase in the way of bee literature, but are still open for help and shall be glad if anyone is willing to send us advice and counsel.

After five or six years trying to improve our Chinese bees in every way possible, with only the merest bit of encouragement we are now going in more largely for Italians and Carniolans. It has taken us some time to make a start with these European bees. For more than two years we tried to get queens safely across from Canada and America, but failed. We ordered queens from British Columbia, Texas, California and other states, but they all died enroute, as did also those we ordered from France, Italy and Austria. Last year we were more successful. Three nuclei sent out from Root's, San Francisco, arrived safely, as also did three queens sent us by Mr. Chadwick, of Selma, California, and last November, to our agreeable surprise, two beautiful Carniolan queens came safely through from A. G. Hann, Glen Gardiner, N. J., in excellent condition.

Prior to this, we had been in communication with Mr. Yasuo Hiratsuka, of Japan, to whom we are greatly indebted for his help and advice, and from whom we have received quite a few queens, both Italian and Carniolan, beautiful golden Italians and choice Carniolans.

We are now making a study, hoping to find out whether these European bees will do well in this climate, and produce a larger surplus of honey than the Chinese bees.

Well, I will stop now and simply say that we keep bees for pleasure only. They are such interesting friends. They came to us in a most unexpected way, and the pleasure we get for our pains is abundant. Please do not laugh, but I will tell you a secret. Bee stings have, I believe, cured me of rheumatism. My friends would laugh and tell you that this is a delusion, and that, not the bee stings, but the "exercise in the open air, is what has wrought a cure, but dont you believe them.

ADULTERATED WAX

Dear Mr. Dadant:

May I trouble you with two questions. The first is to what temperature do you bring beeswax before making it into foundation, and for what period of time is this temperature maintained? I know this question was, some years ago, discussed at length in the bee journals relative to its connection with the spread of American foulbrood, and since this question was asked me the other day and I could not answer it definitely, I would be obliged to you for this information.

2. I am curious to know whether you have made any foundation from wax rendered from combs drawn out from Root's three-ply foundation. I think it would be interesting to know whether, placed in the same frame, the bees would work more readily on Dadant's foundation made from wax rendered from three-ply combs.

Answers.—1. When combs are rendered, it is necessary to bring the mixture to the boiling point of water. But, of course, water does not permit the mixture to go above that point, since it changes to steam. The length of time required to render wax is irregular, so one cannot fix a special time.

After the wax is rendered and before it can be made into foundation, it is necessary to purify it, for commercial beeswax nearly always contains more or less impurities. Our method is to purify a ton at a time in a specially made kettle. It is kept at the boiling point of water about two hours, sometimes longer, and allowed to cool very slowly, so the impurities may settle to the bottom.

For foundation making the wax is again heated and kept at a high temperature during the entire time until it is picked up by the sheeting machine, which cools it suddenly, when it is made into sheets.

2. We have not had occasion to render any of the wax from combs containing a mixture. We don't wish to do so, either, because, whenever we do we render ourselves liable to suspicion of adulteration. Under present conditions the foundation of those combs contains two kinds of wax. When rendered, that wax is simply adulterated wax; there is no other name for it. It may or may no other name for it. It may or may don't want it. The worst feature of this is that, the next time they make it into three-ply, there will be additional adulteration. If it could be separated, it might be all right. But this cannot be done. There will probably be but little of it used.

AN UNUSUAL CASE OF TOO MUCH CARE

A friend of mine in Harrisonville, Mo., undertook to set up his hive in a window of the third story of a high school building, and instead of stopping to make a board entry to raise the window just high enough for the bees to come into the hive entry, or alighting board, he decided to raise the window so that the sash would drop just on top of the cover of the hive and thus fill the window space on either side with excelsior. Now, to many people this might seem a very simple and satisfactory way to keep the bees out of the room and going to and from the hive, minding their own business. But here is what the bees decided to do about it:

There was some attraction either in the excelsior or in the odor of the warm room so that hundreds of worker bees decided to bore their way through the excelsior and get into the room. More excelsior was littered around the floor of the room since this was the room for unpacking supplies. After the bees got into the room they could not go into the hive and did not know, of course, that they should bore back through the excelsior to hunt for the door on the other side. So they wandered around, got tangled in the excelsior on the floor and perished miserably to the tune of three or four thousand worker bees. I noticed that their pollen baskets were frequently loaded with yellow or orange pollen. I am unable to conclude how or why the bees thought they were doing right when trying to go through the excelsior instead of into the open entry of the hive, unless they were giving way to curiosity; thought they smelled bee odor coming through the excelsior. Can the editor guess?

A. C. Burrill,
Jefferson City, Mo.

REQUEENING FOR PARALYSIS

By M. S. Nordan.

In the summer of 1913 I bought 2 queens from different men for breeders. Up until that date I had read a lot about bee paralysis but had never seen any signs of it. I began raising queens from my new queens and requeening my bees. In the spring of 1914 I bought 30 more untested queens from 3 other breeders and still kept raising queens from my other breeders. I soon noticed sick bees in my breeder colonies and after careful inspection I found sick bees in all my hives that I had requeened from my 2 fine breeders and a great many soon turned up with the disease in colonies which I had requeened with the 30 untested queens. I wrote to all the best beekeepers to know what to do. Ninety per cent of them said that it never amounted to anything and was all caused from bad honey and would disappear as soon as the main honey flow came. It did disappear but the bees that had had it never amounted to anything. They never got any surplus for me; all the honey I got came from bees that had never shown any signs of bee paralysis.

I couldnt believe it was caused from honey, for if it was, all of my bees would have been sick at the same time. I began studying my way out. I had many remedies that beekeepers had sent me as a cure for it. I think I tested out all of them, as I had plenty of sick bees to experiment with. Some of the remedies seemed to do good for awhile, but it would soon return.

As I was paying strict attention to my bees I soon found that I had some that had never shown any signs of paralysis. It came to my mind that they were immune to it as I had exchanged them with sick colonies and still they never contracted it. I began raising queens from bees that seemed to be immune to it and about 50 per cent of them turned up with it. But I still felt that there was a cure, and with a determination to prove what I thought about it, I would kill any queen with bees that showed any signs of it.

After 6 or 7 years of killing my fine queens and sticking to my own bees I rid myself of bee paralysis. I made the claim that if it was honey that was causing all the trouble all the bees would be sick at the same time. I am in the locality now that I was at that time and I invite anyone to inspect my apiaries at any time of the year and they will see for themselves that my statement is right.

Alabama.

WANTED—A NEW IDEA

It is said that the use of raisins in bread has increased the market for raisins to the extent of 30,000 tons yearly. Just who first thought of raisins in bread it might be hard to tell at this time, yet it is a comparatively new thing. When it was first tried and was found to be good, growers' organizations undertook some extension work on their own account and sent trained men among the bakers to put the idea across. They did, and raisin bread is now a staple commodity in all the cities, and to some extent in the small towns. Thirty thousand tons is the product of a considerable acreage and raisin growers are no longer selling their product below the cost of production. If you think they are, just try to buy a vineyard in Southern California.

Just now the beekeepers are suffering from a slack demand. The total amount of honey produced is so small in relation to the population that it should be easy to sell the entire crop at fancy prices if only a way can be found to catch the public fancy. If figures were available it would probably be found that candy sold at several times the price that honey brings is equal in quantity to the total honey production. What our industry needs is a new and practical idea which will take with the public—some practical and attractive way of making honey a staple food product. The man who brings forward the idea will deserve something more than a monument at the hands of American beekeepers.

Frank C. Pellett.

EUROPEAN FOULBROOD

Reference to my mode of treatment of European foulbrood, page 193, April number, American Bee Journal, has called forth some inquiries. Perhaps a further explanation will be of interest.

About 15 years ago, European foulbrood, in malignant form, struck

this locality and practically destroyed for me three yards of about 100 colonies each. I tried all treatments then advocated, but with little success, but finally hit upon the plan of killing queens of diseased colonies, and after ten days doubling up by using the infected colony as an extracting super over a strong colony not diseased. In this way I succeeded in entirely getting rid of the disease, and in the last twelve years we have had no European foulbrood. Of course, this plan will not work with American foulbrood.

In treating European, three things are important: strong colonies, Italian stock and prompt treatment. Don't allow the combs to become rotten with disease before cleaning up. Go through each hive every two weeks and promptly kill the queens of every one that shows infection. Ten days later destroy all queen cells and use the hive as a super over a queenright colony, placing a sheet of newspaper between to keep them from fighting. When filled with honey the combs of the super may be extracted and thereafter used for any purpose desired. There is no necessity of destroying any combs in treating European foulbrood. By the above plan we get rid of stock which is susceptible to the disease, and the doubling up strengthens the colony so that they are able to clean out all infected material and keep clean.

It is not necessary to divide these colonies later. If increase is desired, get some good Italian queens and build up nuclei with combs of brood from disease-free colonies, remembering always to keep plenty of bees on these combs. Don't forget these three things: ITALIANIZE, KEEP ALL COLONIES STRONG, TREAT UPON THE FIRST APPEARANCE OF INFECTION. European foulbrood is not a serious matter if handled rightly and it is not at all necessary to destroy combs nor to treat combs with disinfectants.

E. S. Miller.

Valparaiso, Ind.

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From factory to you, our excellent made material at attractive prices. Send in a list of your needs of BEE SUPPLIES for the coming season and get quotations on it.

Langstroth portico 8 and 10-frame hives and supers, also 8-frame 4x5 comb-honey supers at cost prices, while they last.

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	1	6	12	1	6	12	1	6	12
Untested	$2 00	$ 8 50	$15 00	$1 50	$ 7 50	$13 50	$1 25	$ 6 50	$11 50
Select Untested	2 25	9 50	18 00	1 75	9 00	16 00	1 50	7 50	13 50
Tested	3 00	16 50	30 00	2 50	12 00	22 00	2 00	10 50	18 50
Select Tested	3 50	19 50	35 00	3 00	16 50	30 00	2 75	15 00	27 00

Select tested, for breeding, $7.50.

The very best queen, tested for breeding, $15.

Capacity of yard, 6,000. I sell no bees by the pound or nuclei, except with high-priced tested and breeding queens.

Queens for export will be carefully packed in long-distance cages, but safe delivery is not guaranteed.

JOHN M. DAVIS, Spring Hill, Tenn.

THE REMOVAL OF AN UNDESIRABLE FLAVOR AND AROMA FROM HONEY

By W. A. Goodacre.

During the past season a fairly large quantity of honey that contained a very undesirable flavor and aroma was extracted from the hives at the Government apiary at Wauchope. The other qualities of the honey, such as its color and density, were of a high standard. It was observed that the tree commonly called turpentine and a number of other shrub plants were flowering at the time.

The matter was brought under the notice of the Department and put into the hands of Mr. A. A. Ramsay, Principal Assistant Chemist, for experiment as to the possibility of treatment that would remove the defects.

Two methods were devised in the laboratory by Mr. Ramsay, by which both the undesirable qualities were removed from the small samples submitted and a trial on a commercial scale on the same lines was decided on.

The following is a description of the methods employed:

Animal Charcoal Treatment

Thirty ounces of animal charcoal were thoroughly mixed into 50 lbs. of slightly warmed honey and the mixture stirred occasionally and left for a period of twelve hours. An ordinary cappings reducer—a water-jacketed arrangement having diamond-shaped hot water pipes fitted low down in the inside—was fitted up with a piece of wet flannel as a filter, so that the flannel would have the support in the straining of a piece of wire cloth screen placed over the hot water pipes, and so that the flannel completely covered the inside of the reducer.

The heater was filled with hot water and kept at a temperature of 150 degrees Fah. by a heater placed underneath in the usual way. The warmed mixture of honey and anial charcoal was then poured into the body of the apparatus, and within a few moments the water was delivered from the filter and the honey commenced to flow steadily but freely. The time occupied in filtering the honey was forty minutes.

The honey came through perfectly clear, and the change in both flavor and aroma was remarkable. The harsh flavor and peculiar aroma had completely disappeared, and yet the good qualities of the honey had not been interfered with. The honey had been changed from a very unpalatable sample to a high grade one.

The honey should be allowed to run straight from the reducer as it filters through the flannel. The idea of wetting the flannel previous to placing it in the funnel is that the warmed honey will filter easier, and the water with which the flannel is impregnated will be displaced by the honey as it enters the flannel. If desired the water could be put away and the receiver placed in position as the honey commences to come through. The amount of water is very small, and does not appreciably alter the composition of the honey. With imperfect filtration no harmful result would obtain, so far as human consumption is concerned, but the honey would be cloudy and unattractive.

Animal charcoal can be used more than once. Our procedure was to put the used charcoal in a feeder over a good colony, and allow the bees to clean it up while a fresh lot was being put through. Of course, there must be surety of freedom from disease in all cases where honey is fed to bees. There may be some difficulty at the present time on obtaining supplies of suitable animal charcoal. Fine-grained charcoal is usually available from chemists, but it is imperative that a coarse-grained charcoal be used.

The Alumina Cream Method

The second treatment consisted of mixing alumina cream with the honey at the rate of 1 ounce of the cream to 1 pound of the honey, allowing the mixture to stand for fifteen to thirty minutes, and then filtering as above. The result obtained, so far as the removal of the harsh flavor and peculiar aroma was concerned, was equal to that of the charcoal method. but trouble was experienced in the filtration of larger quantities. After 30 pounds of honey had been filtrated the flannel became congested with cream. Further experiments to remove this trouble will be carried out. —Agricultural Gazette, N. S. W.

Aged Peach Trees

A report comes to us of 73-year-old peach trees located at Coloma, calf. These peach trees were brought calf. These peach trees were brough across as pits when Peter Weimer crossed the plains in a " prairie schooner" in 1850.

He planted the sack of peach pits and started an orchard, of which three peach trees are still standing

We wonder if beehives would stand the ravages of time as well as have these peach trees. Evidently they will where properly painted and cared for.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

ANTS

How can I get rid of ants. They are about my apiary and sometimes in the hives.
NEW YORK.

Answer.—If you know where the ants' nest is, and it is in reach, you may destroy it by pouring carbon disulphide or kerosene, or gasoline into it. Some people pour in gasoline and immediately afterwards, after having removed the can in which it was brought, set fire to it. The objection to this is that it will also burn the grass at that spot.

If you cannot reach the ants you may be able to frighten them away by painting with kerosene the wood on the outside of the hive where they crawl in. Carbolic acid is good for that, also. If the ants are in the hives, over the top of the brood chamber, as they sometimes get there to have the warmth of the hive, you may drive them away by placing some salt, or ashes, or spreading a sheet of tarred paper there.

If none of these things is available, you may poison the ants by mixing some arsenic in honey and putting it between two boards where only ants can get at it. But that should be destroyed as soon as it has served its purpose, for it is dangerous for the bees, if it is left exposed.

As Dr. Miller often said, ants are more annoying to the beekeeper than injurious to the bees, for a healthy colony of bees will not permit them to come within the hive. But it is very annoying to have them crawl over your hands when you open the hives.

WAX

In one of my hives and three or four of my neighbors' there appears a sort of crumbs of wax. The bees seem to be carrying it out and dropping it on the platform in front of the hive entrance. Are the bees cleaning house or is there some disease in the hive.
ILLINOIS.

Answer.—The crumbs of which you send sample are just cappings of honey cells, and a few are cappings of brood cells. When the bees uncap cells, a great number of the cappings are wasted. At times when they are building comb, it is probable that some of those crumbs are used for other cappings, for bees can use wax over in building. But in a heavy honey season, all the combs and cappings are made of new wax; with the exception of brood capping, which are nearly always of the same color as the combs on which they are, showing that the bees use parcels of wax from the comb in capping the brood.

EXTRACTING AT FAIRS

Do you know whether a person could extract honey on the fair grounds if the building was bee-proof? This would have to be screened all the way around, so the people could see. I have the idea that if the people could see how extracted honey is put up and taken from the combs they would buy it like hot cakes.
NEW YORK.

Answer.—This matter of exhibiting honey and extracting honey on the fair grounds at state and county fairs, is of great importance. We are usually too busy at the time of fairs to attend to it, but we exhibited once at the Illinois State Fair and honey was extracted upon the grounds, in the exhibition building, and we do not know of anything that is better to advertise it than this. The management of a fair ground is usually quite willing to go to some expense to enable the beekeeper who volunteers, to arrange a suitable screen, if needed. A small part of the building may be screened off, so as to give no occasion at all for robber bees and make matters entirely safe for the public.

Several states have arrangements for this purpose, and it will be worth your while to make an effort to secure similar arrangements in your county.: It is for the benefit of the general public as well as for that of beekeepers that such an educational display should be carried on, for there is not one person in ten, the country over, who knows anything about pure honey and how it is taken from the combs. Most people have the most absurd ideas that may be imagined concerning it.

PACKAGE BEES—DISEASE, ETC.

1. What size of package, 1, 2 or 3-pound, do you recommend. I just want them strong enough so they will build up for next spring, getting them in August.

2. How far away from apiaries infested with American and European foulbrood will I have to put these so as to be safe that these will not get it?

3. Goldenrod and Spanish needles begin to yield here about August 10, and always give some surplus. Do these make good winter stores?

4. Is European foulbrood ever ropy or jelly-like? I had a few colonies last year which had European foulbrood and it broke out again in a few of them this spring and I found a few cells which were ropy and then turned jelly-like. I watched these cells and found that the bees cleaned them out. What do you think this was? Will they clean out American foulbrood?
MINNESOTA.

Answers.—1. If you want to buy bees August 1st to fill up the hive before winter and make enough to winter, I would recommend not less than 2-pound packages, 3 pounds would be better. Of course much depends upon the amount of crop that will be available, and this you can judge better than I can, because you know how much bees harvest in August in your section. You should bear in mind that your 2 or 3 pounds of bees must not only build out the foundation which you must give them, but must also rear brood for the winter cluster of young bees, and secure enough honey to carry them till spring. That is a big task, but in an extra good location it may work, even as late as the first of August.

2. You should be not less than 7 or 8 miles. But you must also bear in mind that, outside of other apiaries there may be stray swarms with the disease, in trees, in clefts of rocks, in house walls, and perhaps in other places we think nothing of.

3. We have never had goldenrod honey here, but Spanish needle honey is good for winter and I do not believe that goldenrod honey is objectionable, if well ripened.

4. European foulbrood is sometimes slightly ropy. But they rarely, if ever succeed in cleaning out American foulbrood

so, from your description, I am inclined to believe it was European foulbrood. But you should keep both eyes open all the time.

CLEANING EXTRACTING COMBS.

What is the best method to use to get bees to clean out combs after honey has been extracted from same?

We have had trouble in that bees clean out combs, but deposit honey again in some of the cells. MANITOBA.

Answer.—There is very little trouble about bees putting honey back into the combs from which honey has been extracted, if those combs are given them after the end of the crop. But there is one way to secure the removal of the honey. It is to place an empty super between the extracted supers given to them and the brood chamber. The honey being thus quite remote they carry it down, unless the crop is still on, when, of course, they may refill the super.

Some beekeepers make a broad bottom board with space for connecting another tier of supers with the hive body and pile 3 or 4, or even half a dozen supers on it. If it is arranged so that there is no connection with the outside except through the hive, there is no opportunity for robbers to invade the supers thus being cleaned. In the July, 1921 number of the American Bee Journal, page 272, Mr. J. F. Dunn gave a very good method for piling as many as 20 supers around a hive, so they could only connect with that hive at the bottom. Of course, that colony must not be over supplied with honey, for they would not know where to put it.

Some people put the supers in the open and let the bees rob out the honey. I consider that a very bad method.

SALT—DESERTING THE HIVE

1. I see in the June Journal about May disease. I do not know that I ever saw it, but I was taught by a beekeeper that this disease is caused by bees working on grape blossoms. He said to feed the bees on salt to cure this trouble. Would that do?

2. Is there a cause for bees deserting the hive in the spring, in time of honey flow, when they have all they need? OKLAHOMA.

Answers.—1. The disease called May disease or paralysis is not caused by the grape blossoms, for it usually appears before the time of grape bloom. The remedy which you mention of giving them salt might be good, for they evidently need some kind of tonic. I would suggest that we give them salt water every spring. They show the need of it for they often go where urine or other salty liquid has been spilled

2. There is not, to my knowledge, anything to cause bees to desert their hives in spring, unless it is shortage of honey or pollen, or both, or perhaps in some cases a hive made foul by their dejections, when suffering from diarrhea, in the early part of the season. See that your hives are clean, that the bottom boards are swept clear of dead bees and that they have sufficient stores, and I believe you will have no trouble. Sometimes a weak stock may be helped in a very efficient manner by giving it a small comb of brood, but not enough to run any risk of the brood being neglected or chilled.

MODIFIED DADANT HIVES

1. Is there much of any swarming when using the Modified Dadant hive where plenty of extracting combs are given the colony early?

2. What size and kind of extracting super do you recommend to use with the Modified Dadant hive?

3. When using a full Dadant hive body for an extracting super do you have any trouble getting the outside combs filled, that is more so than with other depths and widths?

4. Do you have any trouble with regular Modified Dadant frame when used, in the extracting super, on account of combs breaking down when extracting?

5. Where good judgment is used in removing honey can you use the shallow extracting super successfully without queen excluders, that is when used on your large hive?

I have understood that the queen is not likely to go into shallow frames when used on your large-framed hive.

6. Is it necessary to do much manipulation to prevent swarming? NEBRASKA.

Answers.—1. There is very little swarming if all our methods are followed: Young queens, very few drones, large brood chambers, large supers, good shade, plenty of ventilation.

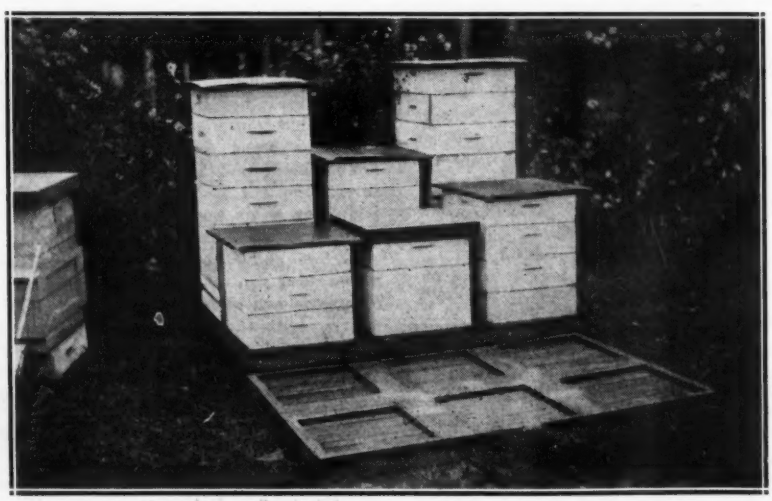
2. We use a shallow super with a frame having a 6-inch side-bar.

3. We never use a full-size hive for super. We prefer using two shallow supers instead. They are filled better and are less difficult to handle.

4. We have no combs breaking down in the supers, because we use those shallow frames. We used to have some breaking down when we tried full super stories. All this was tested thoroughly by us years ago.

5. We never use queen excluders. The queen goes in the super to lay only when there are drone combs there. We keep the drone combs out entirely. We do not have more than 5 per cent of the queens go into the supers to lay.

6. No. That is the great benefit of our method. It requires less manipulation than any other.



The Deadman super cleaner.

BALLED QUEEN

1. I ordered some package bees from the South this spring. When they came the queens were caged. About two or three days later I opened the hives to see if the queens were released and found one colony balling their queen. I sprinkled them with thin syrup; then they went to cleaning themselves and did not pay any more attention to the queen.

Just one week after releasing the bees I found the queen dead at the entrance of the hive. On opening the hive I found quite a lot of eggs and young larvæ, also two queen cells started with larvæ in each.

If there was not another queen with the bees that was not caged, they must have kept their queen just long enough so they could rear a queen of their own. Do you think they would do this?

2. I have ordered another queen for these bees. Would you try to introduce the new queen or would it be best to let them rear a queen of their own? Do you think there is liable to be another queen that was not caged? MICHIGAN.

Answers.—1. Although this does not happen very often, we have seen queens superseded just as soon as they had laid enough to provide the bees with young larvæ. We believe this happens when the queen is fatigued from the trip and is considered by the bees as inferior or failing. There is also the feeling of strangeness which the bees often show towards their queen when you open the hive in a dearth. It has often been stated that bees will ball their own queen sometimes in the spring when the hive is opened. They then take her as a stranger. That must be what happened in your case. That is why queen breeders tell you to leave the hive without opening it for a week after introducing.

2. It is possible that there might be another queen, an old one, in the hive. This is doubtful. If you wish to introduce another queen in this hive, better take a queen from your own apiary that is in active laying, and put the new queen in the hive thus deprived of its queen. There will then be more chance of having both accepted, because the queenless hive is under suspicion and would be more likely to kill a queen that has traveled than one fresh from the apiary.

VENTILATION.

1. After setting the hive on inch blocks, must it again be put on the bottom board when the honey flow ceases, if colonies are very strong?

2. Do you find comb built under the frames which must be cut before lowering the hives to the bottom board again? IOWA.

Answers.—1. We do not set our hives on inch blocks, except in front, the rear always remaining set on its bottom. The front, however, may be raised even as much as three inches, according to the heat and the number of bees that hang out. As soon as the crop is over we lower the hive down, unless it is very strong, when it is useless to reduce the entrance until cool weather comes.

2. No comb is built under the frames at any time, for the reason that the bees do not want comb in their way. But it is likely that if we did not give the colony sufficient room in the supers, they would build down. That is a matter which lies entirely with the practical beekeeper, and he is surely not understanding his interest if he lets his bees get crowded so much as to be compelled to build comb down in the passage reserved for air and traffic.

PLACE OF BEES ON THE FARM

By J. M. Coyner

Agricultural Agent, Jefferson Co., Wisconsin.

If beekeeping in southern Wisconsin is to be successful on the average farm, it must fit into the general plan of farming, just as other branch farming fits in. For example, the farmers of southern Wisconsin are interested in pigs primarily because they are in the dairy business and the pigs are a profitable means of disposing of their skim milk and other dairy by-products. They are interested in limestone because it is indirectly related to their business; they find it profitable in growing alfalfa for dairy cattle. We find that beekeeping fits into the farming of southern Wisconsin in an unlooked-for place: It goes along very profitably with the farm orchard. I do not mean the large commercial orchard, but the small country orchard such as you would see on the farms traveling out of Watertown on any highway you might chance to take.

We have in Jefferson County eight community orchard spraying organizations, including approximately one hundred farmers. The majority of those farmers have become interested in bees as the result of their taking an interest in their orchards. Three seasons ago while going through an orchard looking over the check trees that we had left unsprayed, the owner of the farm was very much impressed with the large number of bees that were working on his trees. He remarked that it was too bad that none of the bees belonged to him. Since he had to furnish them with food he might just as well be getting the honey. He also added that he had once had a few stands of bees, but that they had gradually died out. Later in the summer, while looking over the check trees in the same orchard, he again brought up the subject of bees, remarking that such industrious little fellows as bees ought to be given a home in the orchard where they find so much food. By the next season he had purchased several colonies of bees and had located them in a very convenient place in the orchard.

This incident suggested the idea that the farm orchard and the bee industry could profitably be worked together with both pleasure and profit.

The farm orchard furnishes an ideal location for an apiary. The hives are out of the way of live stock. The shade of the trees furnishes a cool, comfortable place while working with the bees. The blossoms of the trees furnish an abundance of feed. Sweet clover, which is excellent bee pasture, is being grown in the orchard as a means of supplying fertility for the trees. The old, half-starved orchards of southern Wisconsin revive wonderfully when a crop of sweet clover is sown in between the trees. We find that the four summer sprays can be applied without injuring the bees in the least, as none of these sprays are applied when the blossoms contain nectar. Neither do the sprays poison the sweet clover, as they are not applied when it is in bloom. If sufficient care is taken in spraying, no doubt alsike clover could safely be grown both as a nitrogen gathering crop and as a pasture for bees.

It is very easy to present the subject of beekeeping to a farmer while visiting and inspecting his orchard. It is natural that he should be willing and anxious to take the same precautions to protect his apiary from disease and provide the bees with the proper food, as it is for him to protect his orchard against insect pests and disease and provide it with the proper nourishment and give it the proper care.

The bee industry in Jefferson County is on the increase in number of colonies, number of farmers, and the care that is given to the bees.

HONEY PRODUCTION IN NEW ZEALAND

(From American Consul K. deG. Mac Vitty, Aukland, New Zealand, November 21, 1922.)

Honey production is one of the minor rural industries that is rapidly expanding in the Dominion, and particularly in the Auckland province. So great has been its development in the district during the last decade, both in production and marketing methods, that it gives promise of ranking as one of the steady revenue producers among the ordinary sources of wealth in the district. The real prosperity of this industry in the Dominion from a commercial point of view commenced with the passing of the Apiary Act in 1906, which made the use of box hives illegal and laid compulsion on the beekeepers to keep their apiaries free of disease. The act reduced the number of beekeepers, since it abolished many of the haphazard hives that used to supply amateur owners with small quantities of honey. On the other hand, it gave great encouragement to professional beekeepers, who found themselves able to extend their operations with a fair chance of success. The effect of the introduction of scientific methods of beekeeping is strikingly illustrated by the fact that in 1906 there were in the Dominion 15,396 beekeepers, with 74,341 hives, producing 1,003,940 pounds of honey. In 1921, the beekeepers numbered 8,426, possessing 85,861 hives, producing 2,807,346 pounds of honey. Thus in 15 years, with the number of beekeepers reduced by nearly half the hives had increased by over 11,000 and the production had been nearly trebled. The figures tell their own story of increased efficiency.

Much of the expansion of the industry in recent years has taken place in the Auckland province. Of the total of 8,426 apiaries in the nine provincial districts of the Dominion, 2,269 are situated in Auckland. Since 1914 compulsory grading of honey has been carried on in Auckland by the Government, and this has done much to place the export business in a satisfactory position.

Honey exported from Auckland in 1921 totaled about 615 tons, which at an average price of 6d a pound represents a total of 34,440 pounds sterling. In addition, honey prepared here for Dominion consumption amounted to 288 tons, valued at 13,512 pounds sterling.

With the rapidly increasing production of honey the necessity for adopting sound methods of marketing claimed the attention of producers. The result was the formation of a co-operative association, which includes 95 per cent of the commercial beekeepers of the Dominion. The association adopted what is practically a pooling system, as far as the honey exports are concerned, and the honey marketed in Great Britain is under the control of the association till it reaches the consumer. The headquarters of the association are at Auckland and from this port is shipped the bulk of the honey exported from the Dominion.

The Auckland district is particularly suitable for honey production. With the great expansion of the dairying industry and the consequent growth of much white clover a considerable quantity of the output of the district is white honey. In addition, the natural flora of the district provides a supply of nectar that gives a distinctive flavor to the honey from that source. Experts state that the peculiar flavor of honey drawn from the Pohutukawa flower is greatly favored by consumers. The ranks of beekeepers have been increased since the war by returned soldiers who have engaged in the industry. Among them are a number of partially disabled men who, unfitted for the heavy work of general farming, find in beekeeping a profitable means of employment.

(Secured through Bureau of Foreign and Domestic Commerce).

WHEN YOU COME to Madison, Wisconsin, August 13 to 18, 1923, to attend the Wisconsin Beekeepers Chautauqua and the

DR. C. C. MILLER MEMORIAL MEETING,

plan to visit the home of "Beeware," only 42 miles away, conveniently reached by rail or state highway. G. B. Lewis Company, Watertown, Wisconsin.

BEFORE YOU GO

WESTERN BEEKEEPERS!

We handle the finest line of bee supplies. Send for our 1923 price list. Our quotations will interest you.

The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

PURE CARNIOLANS

Are very gentle, hardy, and as honey gatherers are unexcelled; extremely prolific, admirable winterers, highly disease-resistant; in short, they are Superior.

Carniolan breeding mothers imported in 1922 insure purity, vigor and breeding. Consider this in buying.

Write for our Circular, which gives you more fully the history, merits, prices of queens, etc., of this hardy gray race. It also gives you some accurate information on the other different races of bees. It's free for the asking.

Investigate, get the facts. CARNIOLANS merit your consideration over others. A trial will convince you.

W. A. HOLMBERG
DENAIR, CALIFORNIA.

Few Packages for Aug.
at Reduced Prices
With queen introduced and laying enroute.
JES DALTON
Bordelonville, La.

CARNIOLAN and ITALIAN QUEENS $1.00

J. E. WING,
San Jose, Calif. 155 Schiele Ave.

FOULBROOD EXPERIMENTS

By Lewis P. Tanton.

European foulbrood found its way into my apiary and my misfortune of following the advice of various expert advisers protracted my experimental investigations into a period of several years. This was not an unmixed evil, in that I have learned some things that are neither in the bee books or bee journals.

Requeening is most frequently advised as the best method of eliminating this disease, and I have learned that it is absolutely certain of success under specific conditions and equally certain of failure under others. This latter fact has not been explained or emphasized by our educators. A strong colony in which the young queen is not too hastily produced will invariably reward the young beekeeper with a thoroughly cleansed hive, while the weak colony, or even the strong one, in which a young queen is hastened to maturity will give an accurate guarantee of failure.

The first advice of our local inspector, which I carefully followed, was to lift the brood chamber up to the place of the super, then put the queen below in a new hive body, filled with foundation, and let the bees hatch out and fill the old body with honey for extracting. I found that it didn't work in all cases. Disease got down stairs in some way. I repeated this a second time in the same season and still had failures. In this latitude (Prince Edward Island) it is with difficulty that this operation can be repeated twice, and never the third time, in our short season.

Next year I tried another plan. "Shaking" was recommended, but my fears were that I would shake some diseased stuff into the new hive, so instead I put the queen in the new hive with foundation and removed the bodies several yards to the rear. The old bees returned to their former stand and developed into clean colonies. The old foulbrood bodies I massed, four supers high, on their new stands. I did not allow these to raise queens for several weeks. The immense number of young bees in these boxes consumed all the loose honey, in which disease was, and when I did queen them they had the combs thoroughly cleaned and no foulbrood resulted. There was a lapse of about two months from the time these boxes were located and the laying of the new queen.

I am satisfied that the queen will not deposit a fertile egg in a diseased cell. This conclusion was forced upon me by a remarkable incident. In removing a particularly fine queen into her new hive, I gave her a new comb from the main body filled with eggs. A large area in the center of this frame developed foulbrood in its worst form. When the bees hatched out I removed this comb to one of my quarantine hives, but not before the queen had again filled every cell with eggs. Now the curious part was this, that when this frame hatched out every infected cell, which consisted of a solid four by seven inch space, hatched out a miserable, small black drone, hardly larger than an ordinary worker, while in the unaffected portion of the comb there was nothing but her own beautiful type of yellow worker bees. I think if the observing apiarist will watch closely he will find the queen in every case will avoid using infected cells, and if forced to do so will only deposit drone eggs.

European foulbrood, I conclude, is transmitted from the mouth of the feeding bee to the young larvæ, and in no other way. I may be wrong, but I don't think infection takes place from the cell walls. In support of this there are many testimonies of combs being cleaned up by vigorous colonies and then freely used with safety. Let me recite some incidents in further confirmation. I discovered a single cell of foulbrood in a vigorous hive. Not wishing to destroy a comb for such an apparent trifle, I took a match and with the wood carefully cleaned out the infected germ, leaving the bees to finish the job. The next time I looked I found several similar cells. These I cleaned out in the same way, and in a short time the whole colony was infected. It then struck me that unsciously I had spread the disease. Stirring up the foul matter had compelled the bees to finish the cleaning up, and by so doing they took the living micro-organisms into their stomachs and in turn distributed it to the young larvæ throughout the hive.

This incident suggested another conclusion which I think is well worthy of consideration. I think it is the philosophic foundation on which requeening as a remedy is based. The foulbrood larva dies in the cell and in time becomes a hard, dry, brownish, black substance. The infection also dies with it, and when the bees remove it there is no further danger from that source. This, I believe, is the one reason why a strong colony eradicates it more effectively than the weaker one. In the strong colony the heat and air circulation are greater, the cell dries up quicker and the dead matter is carried out more speedily. In the weaker hive the larva will remain moist for a longer period, the removal will be slower and, to make up for this, requeening must be delayed for a proportionately longer time to ensure success.

After I had pronounced my yard clear of infection, I had the pleasure of a visit from our then Dominion Inspector. To make sure of my permanent cure, I was melting down my combs from infected hives. Once a yard is absolutely clean, I do not believe this form of foulbrood will return, except by importation or introduced infection. Therefore I was sacrificing my combs to the wax pot to ensure a complete job. The inspector objected that while I might assume this expense in my small apiary, he could not recommend it in large apiaries where the destruction would involve thousands of combs and dollars. Declaring that the disease dies in six months, he assured

me that I could use last year's combs with safety. I produced a few frames taken from the previous year's supers, from infected hives. They were new combs, yet in which one hatching of brood had taken place. They were ten months in the honey house, but after extracting I did not risk allowing the bees to clean them, so there was still the moisture of last year's honey on them. He assured me I could use these in the brood chamber with perfect safety. I did so and re-introduced the disease into every hive in which I placed them.

The lesson I take from this is, the disease germs that will die in the dry frames within a few weeks or months will live and continue as a menace for a very much longer period in the honey or honey-damp frames. Had I had a diseased colony on the grounds in the fall, to which I could have given these extracting frames to be cleaned up at this time it would have been safe to use them as our inspector advised. Thus in using combs from infected hives, there is only safety in having every trace of possible diseased honey removed, first by extracting and then having the frames cleaned by the bees. This cleaning can only be entrusted to hives already infected; it is not safe to let the clean colonies come in contact with them. Then it may be safe to use them in the following season.

The Wisconsin Meeting

When the beekeepers assemble for the field meet at Madison, Wisconsin, August 13-18, they will hold their meetings on one of the beauty spots of Wisconsin. All activities center around a large lecture tent on the University's private camp grounds. These pleasant grounds, shaded by large trees, will provide plenty of room for the many who plan to bring their tents and camp during the week.

The beautiful Lake Mendota, at the edge of the camp, provides fine fishing, boating and swimming. A beekeeper' cafeteria on the grounds will make it unnecessary for the visitors to leave the camp during the entire week.

The national significance of the meeting is attracting many from surrounding states who desire to share in honoring America's best beloved beekeeper.

One very interesting feature of the program will be the reading of letters from Dr. Miller's many beekeeping friends throughout the world. These letters, entitled "What Dr. Miller Did for Me," will be bound in book form and placed in the library established in his honor.

Ontario Graduate to Kansas

Dr. J. H. Merrill, of the Kansas Agricultural College, at Manhattan, has added to his staff as instructor in beekeeping Mr. J. A. Munro, who is a graduate of the Ontario Agricultural College, having completed his course in apiculture there a year ago.

Italian Queens, Yancey Hustlers

Three-band Strain. They get the honey.

Fifty two-pound packages shipped to Ontario in May of last year produced 160 pounds of fancy section honey per package. The rush of package shipping is now over and we can supply you promptly with this finest strain of queens:

Untested, 80c each; $9.00 per doz.; $70.00 per 100. Tested $1.50 each.

Only one grade—select. We guarantee safe arrival and satisfaction in every respect.

Caney Valley Apiaries, Bay City Texas

YANCEY BROS. OWNERS

Queens! KNIGHT'S QUEENS ARE LINE BRED Queens!

Pure Three Banded Leather Colored

For hardiness, prolificness, gentleness and honey-gathering qualities they cannot be excelled. Mr. C. F. Brown, Fairchild, Wis., writes: "The colonies headed with your queens wintered the best of any of them. I am 68 years old having handled bees for 52 years. Think I am competent to know what constitutes a hardy strain. Yours are the best I ever owned."

Prices for balance of season, select (one grade) untested:

1 to 4, inclusive	$1.00 each
5 to 9, inclusive	.90 each
10 to 24, inclusive	.80 each
25 or more	.75 each
Tested queens	2.00 each

Shipment can be made by return mail or on dates to suit purchaser. Safe arrival, pure mating, perfect queens, and perfect satisfaction guaranteed. No disease.

JASPER KNIGHT, Hayneville, Ala.

HONEY CONTAINERS

2½ lb. cans, per carton of 100	$4.25
5 lb. pails, per carton of 50	3.50
10 lb. pails, per carton of 50	5.00

Above packed in cartons which are dust proof, light and easy to handle, keeping your pails and cans clean until you are ready to use them.

2½ lb. cans, per case of 24	$1.25
5 lb. pails, per case of 12	1.10
10 lb. pails, per case of 6	.90

Above packed in wooden reshipping cases.

5 gal. cans, 1 per case	$ .90
5 gal. cans, 2 per case	1.25

Glass Jars.

8 oz. Honey Capacity, per case of 24	$1.25
16 oz. Honey Capacity, per crate of 24	1.50
32 oz. Honey Capacity, per case of 12	1.30

Above Prices F. O. B. Reedsville.

Write for prices on large quantities of Pails and Glass Jars, stating number and sizes wanted.

A. H. Rusch & Son Co., Reedsville, Wis.

3 BANDED QUALITY QUEENS GOLDENS

Ohio Valley Queens are as fine as can be had. Reared from the finest honey-gathering strains of Italians, and we feel sure you will be well pleased with them. For we spare no trouble or expense to produce queens of the best quality. Why not be one of our many satisfied customers? Many have experienced a poor season and are probably disappointed and discouraged. But let's hope and look forward to better, and prepare now for next season. One important point in next year's honey crop and wintering successfully is a good queen now.

JULY 1 to NOVEMBER 1 PRICES:

Untested ---------- 1 to 12, $ .85 each
Select untested ---------- 1 to 12 $1.15 each
Select tested ---------- 1 to 12 $1.75 each
Virgins (not mated) ---------- 50c each

For quick service send us your order. Entire satisfaction and safe arrival guaranteed in United States and Canada. Wings clipped free on request.

Ohio Valley Bee Co., Catlettsburg, Ky.

WE MANUFACTURE FOUNDATION

Our Specialty is

Working your wax into foundation, for cash or wax in payment. Write us for list of supplies and get our prices on the best Hives, Sections, Frames, etc made in Wisconsin.

GUS DITTMER COMPANY
AUGUSTA, WISCONSIN

BEEKEEPERS WE MANUFACTURE DOVETAILED HIVES, HOFFMAN FRAMES, SECTIONS AND SHIPPING CASES

Our hives are made of best grade White Pine, cut accurate and smooth to standard measure. Sections are made of Basswood polished on both sides. There are no better made.

We carry a complete line of everything used in the apiary. Our shipping facilities are as good as can be found anywhere. We want your business. We guarantee prompt and satisfactory service. Price list free.

MARSHFIELD MANUFACTURING COMPANY, Marshfield, Wis.

BOOST THE SALE OF YOUR HONEY

These little labels at next-to-nothing cost will add to the attractiveness of your honey container and help sell your honey. SEND FOR FREE SAMPLES.

We also make the most attractive HONEY LABELS on the market today. LOWEST PRICES. You should have a copy of our catalog. IT IS FREE.

Liberty Publishing Co., STATION D BOX 4030 Cleveland, O.

$1 GOLDENS

From now until October 1, untested queens, $1 each or 6 for $5; 50 queens $20.

Promptness and satisfaction guaranteed.

R. O. COX, Rutledge, Ark.

MOSES' THREE-BAND ITALIANS

are bred for business; they get the honey. Queens from now to October: One, $1; 12, $10; 25 or more, 80c each. Special price on large lots.

W. H. MOSES,,
Lane City, Texas.

APIARY THOUGHTS

Some Opinions on Current Topics

By Morris Spencer, Sawtelle, Calif.

Referring to a recent number of the American Bee Journal, I notice an article on parthenogenesis, where a French naturalist claims that the eggs laid by the queen often fail to hatch, showing that they are not fertilized. After studying this subject for years, while grafting cells in my queen work, I am certain that he is mistaken and that eggs fail to hatch because they are either chilled or otherwise injured after being laid by the queen. The case of fertile workers laying should prove it to any one who has made a study of it. (Sometimes a queen's ovaries are defective, so the eggs do not hatch.—Editor)

Does Beekeeping Pay?

Another article is "Does Beekeeping Pay?" asking for answers. One might just as well ask does poultry pay? Sifted right down, it can be answered by saying: If you go at it right, beekeeping can be made to pay. I made a good living out of it for 25 years in California, until I began to think I should own all the bees west of the Mississippi River; then I went broke and now I am starting again. On a basis of 10c for honey and 70 pounds net honey average, which was mine for 25 years, or $7.00 per hive, doubling colonies yearly, with a net profit of $2.50 per hive; and a little extra profit for wax, makes close to $10.00 gross per hive. Counting off $3.00 for cases, rents, taxes and odds and ends, makes about $7.00 net per hive per year, when one does his own work. Can one buy bread and butter, etc., from a yard of 250 colonies which will bring in $1,750 per year? By cutting out fancy smokes and the like, no doubt one can.

Next is what basis to figure on to value a honey business when selling one's honey. Having realized about 50 tons per year I can give my basis as follows: Set certain value on all complete colonies, extra hives, extra machinery. In California it is about $10.00 per hive gross for all; that is a yard of 250 colonies would be valued at $2,500. Deduct your labor and 5 per cent wear and tear on hives, machinery, etc., and interest at 8 per cent.

After one has put in years at handling 2,000 colonies in twenty yards it makes one feel and see how some beekeepers are still longing to be the big ones. Go through the mill once and you will be willing to cut down to about 4 yards of about 1,000 colonies, with a little Ford to get around. Even if you limit yourself to that you will have to throw away money to spend all you make. One of the best ideas in keeping more than one yard or devoting all of your time to bees is to have a sinking fund, so in short years you have something to draw on. If you produce over 70 pounds average or double your increase this year,

sink this surplus into bonds and wait for a short year. It will come in a year or so. Had I done this in 1911, when I produced over $11,000 worth of honey and several thousand increase, I could have tided over the five short years that followed and been on my feet today—but a man must learn.

Again in your State Society lend a helping hand to the beginner in your neighborhood, as he is to be the beeman of the district after you have passed out. Get acquainted with him and show him all you can and never crowd a yard of bees on top of a brother beekeeper.

Standard Supplies

What is this talk about uniform size of fixtures, supplies, etc? Why not start a voting contest and then stand by the decision? And that tariff on honey? The grade of honey that comes to this country has about as much effect on the price of California sage honey as a whirlwind in Kansas. What we need to do is to show the people that we have honey and what it is good for.

Fellow beekeeper, keep after the fruit man and everybody who grows bee feed for you. Donate him a can (10 lbs.) of honey for Christmas every year, and your pay will come back ten times or more.

Some woman says, "Your bees know you, they are acquainted with you; that is why they don't sting you." The truth is, it is the way one acts who is used to bees, when they do not offer to sting.

Bees were brought to California shortly after the gold rush, by Harbison. I have talked with hundreds of miners of '49, but never yet saw one who found bees before. The bees had failed to get over the Rockies before. Harbison brought them around.

About your back-yard apiary, one of the best kinks is to make a little enclosure of burlap or some kind of vine, eight or ten feet high, so that the bees go into the air to fly away, on returning they drop right into the enclosure, thus bothering no one. I have tried it out for years and know it will work.

HYBRIDIZING

My Dear Mr. Dadant:

You will likely be surprised to receive this communication, but I intended to have done so one year ago, but neglected doing it until too late to send the evidence, as I am doing by this mail, under separate cover.

I noticed in a back number of the American Bee Journal, an article, by whom I have forgotten, that bees, in some ways, are a menace to fine fruit, by way of cross pollinizing during bloom. I was raised in an apple section of New York State, and kept bees, but never saw any difference in any apples, peaches, plums or other kinds of fruit, from the effect of bees; but here in Florida I have such an effect with some of my oranges. I have a navel orange tree in my yard, and 200 feet away I have, among others, a mandarine tree, and out of about 6,000 of the mandarines on this tree, this year I don't believe there are 50 that have not a "navel" in the blossom end, only smaller than the regular navel orange, and the 'navel" is the only difference I can notice, as the regular flavor is not changed. I am sending you samples of each so you may see as well as taste. Understand me, I am not making any kick on the bee, but it surely does show they were busy at best; but it seems strange to me that no other fruit that I have grown has ever been affected. F. J. Hoffman.

Florida.

Your letter and your- little shipment of 3 oranges are at hand. We have seen and tasted the fruit and wish to congratulate you upon the quality of your oranges. We suppose the large orange is not from the mandarine tree. The others give good evidence of the navel, as you state. They are all excellent in quality.

The effect of blossom fertilization has no influence, as far as we know, on the quality of the fruit. That is to say, if a melon blossom is fertilized by pollen from a cucumber blossom, the melon is still a melon in full. It is the seed which is changed, and if you plant that seed, the following year, you will have a fruit which will be neither a cucumber nor a melon, but a hybrid. Similarly, although the large Alberta peaches may be fertilized by the blossoms of some scrub peach trees, which usually produce much more showy blossoms and much more pollen, the peaches of the Alberta will still be full Alberta. But if you plant the pits of those fine peaches you will, perhaps, get a worthless hybrid.

In your case, I am inclined to believe that the orange trees follow the same law, and that, probably, your mandarine tree was a seedling which was fertilized by the blossom of a navel orange, causing the apparent mixture. Those oranges are delicious, and the tree has certainly not lost by the mixture. C. P. D.

Pennsylvania Picnic.

Annual picnic of Central Penna. and Northern Penna. beekeepers' associations will be held on August 4th, at the residence of Geo. H. Botts, Nesbit, Penna.

Speakers: Geo. H. Rea and Chas. N. Greene. Everybody invited. Bring your baskets. R. E. Merrill, Sec'y, Muncy, Pa.

NEW HAMPSHIRE MEETING.

The N. H. Beekeepers' Association will hold its annual meeting at Durham on August 16 in connection with Farmers' Week. Mr. George Rea, of the A. I. Root Co., will be the chief speaker.

Also with Gloves

A magazine article is headed, "How to Treat Sick Bees." For our own part we always treat them with respect, sick or well.—Utah Review.

ADVERTISEMENTS FOR HONEY

We have had a series of 20 model advertisements for honey prepared by an advertising specialist. This series will provide the beekeeper with suitable copy for his newspaper advertising for all occasions. Simply change the name and address on the add to your own, and it is ready.

The following is a sample of this series. The entire series of 20 postpaid to any address for 50 cents.

NATURAL FOODS BEST

The physician who had prescribed for a patient prone to indigestional troubles, was a firm believer in natural foods. "You must get away from those highly seasoned and elaborately prepared foods," advised the doctor. "I suggest that you consume more of such foods that are produced naturally. Vegetables and fruits of all kinds are good; honey, if you must have something sweet, can be eaten. Honey, in fact, is good for people, sick or well. It is a natural product; through its use you are not risking adulteration as with other sweets. I use a good deal of honey myself."

The Doctor Knows.

Try a Half-Pound Glass at ------Cents

CHARLES JENSON

AUBURN PARK

CHICAGO, ILL.

We offer a full line of selling helps for the beekeeper — labels, signs, folders, etc.

Everything in printing for the beekeeper.

AMERICAN BEE JOURNAL,
Hamilton, Illinois.

A PROPHET

is not without honour save in his own country, and in his own house," but a queen-breeder is known by his bees and service. During 1922 the sale of Hollopeter's queens in the United States and Canada broke any previous record. They satisfy, as this letter shows:

"Derry, Pa., June 11, 1923.

"J. B. Hollopeter, Rockton, Pa.

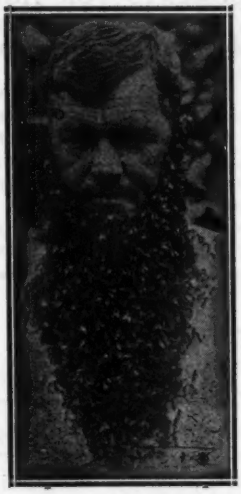
"Dear Sir: Enclosed please find order for $15 for which mail me 12 unt. queens. I bought 20 unt. queens last year and must say I am well pleased with them. Mr. Phillips, bee extension man from State College, was here in my yard Thursday last; he says Hollopeter's bees are fine.

"Yours truly,
"L. L. PECK."

When you requeen, improve your stock with queens from this strain of Italians.

One queen, unt., $1.25; 6 to 25, $1.00 each. No disease, and safe arrival guaranteed.

J. B. HOLLOPETER, Rockton, Pa.



REQUEEN

August is the ideal month to requeen. This season many beekeepers of long experience are buying our queens in hundred lots and state they believe they are getting the maximum queen value. But, remember, we are just as anxious to please the customer ordering one queen as the one who orders 100. At present the conditions are ideal for queen rearing and we never sent out finer queens. A card will bring our catalog.

Prices for the remainder of the season:

1 to 4, $1.50; 5 to 9, $1.45; 10 to 49, $1.40; 50 to 100, $1.30; 100 or more, $1.20. Our very best breeders, $10 each.

JAY SMITH, Route 3 Vincennes, Ind.

"They are coming through in good condition and we are well pleased with them," is what Mr. Wesley Foster, of the Foster Honey & Mer. Co., of Colorado, says about our queens.

With his great string of apiaries located in a section of the west where the honey is produced, Mr. Foster finds that it takes a strain of bees that are thrifty to meet the demands of both the good and bad seasons, so he has selected

FOREHAND'S THREE BANDS--the Thrifty Kind

to head his apiaries. To hold Mr. Foster's business from year to year, as we have done, it takes good service as well as thrifty bees.

When you consider Mr. Foster's business success you cannot doubt his good judgment in selecting a strain of bees that are surpassed by none but superior to many. He knows that it does not pay to guess when your honey crop is at stake, so he gets the thrifty strain of bees that have been tested by America's greatest honey producers for over a quarter of a century.

Prepare now for 1924 by requeening with Forehand's Three Bands "The Thrifty Kind." Get your colonies in condition for winter and insure a good crop next year. We can make immediate delivery.

We guarantee pure mating and satisfaction the world over. Safe arrival is guaranteed in the U. S. and Canada.

Prices:	1	12 to 25	25 to 99	100 up
Untested	90c	75c	70c	60c
Sel. untested	$1.00	90c	85c	

Other grades quoted upon application.

W. J. FOREHAND & SONS, Fort Deposit, Ala.

HIGH GRADE ITALIAN QUEENS

BY RETURN MAIL

In addition to our own strain we are rearing queens in separate yards from the A. I. Root and from the Jay Smith strains. Now is the time to requeen and prepare for the next honey crop.

	1 to 9	10 to 24	25 to 50
Unt. queens	$1.00 ea.	$ .90 ea.	$ .80 ea.
Sel. unt.	1.15 ea.	1.05 ea.	.95 ea.

After August 25 the price will be 20c less per queen. If ordered 3 weeks or more in advance deduct 35c per queen.

FRANK BORNHOFFER, Mt. Washington (Cincinnati) Ohio

PORTER

BEE ESCAPE SAVES HONEY TIME MONEY

For Sale by all dealers
If no dealer, write factory

R. & E. C. PORTER, MFRS.
Lewistown, Ill., U. S. A.

(Please mention Am. Bee Journal when writing)

QUINN'S QUEENS of QUALITY

Have no superior, "There's a reason,"; are Mendelian bred, good qualities accentuated GRAY CAUCASIANS, GRAY CARNIOLANS, GRAY LOWER AUSTRIAN queens; also CYPRIANS, the 3-banded yellow bee. Queens imported in 1922, insure extreme vigor. Laws of heredity strictly observed. My queens are produced by selective breeding, in accord with these laws of nature that must be understood and applied before the best can be had. And is found only in Quinn's Quality Queens. A trial will convince YOU of their value, as satisfied patrons testify by repeat orders. Internationally known the world over.

CHAS. W. QUINN
Powhatan, Va.

Requeen in August

With my pure three-band stock, these will help the wintering problem.

1 untested	75c
25 untested, each	70c
50 untested, each	65c
100 untested, each	60c

Pure mating and safe delivery at all times. No disease.

D. W. HOWELL,
Shellman, Ga.

The Stapleton Apiaries

Read the following unsolicited testimonial:

"Detroit, Mich., May 23, 1923. Your queens have proved to be mighty good queens. My hives are now boiling over. I never have had increase so fine. (Signed) J. D. Carter."

Prices July and August:

Untested queens, 1, 70c; 6, $4; 12, $7.50; 100, $60.

Tested queens, 1, $1.50; 6, $8.50; 12, $16.

No disease. Satisfaction guaranteed.

N. L. STAPLETON, Colquitt, Ga.

BARNES' FOOT POWER MACHINERY

Read what J. E. Parent of Chariton, N. Y., says:

"We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work."

W. F. & JOHN BARNES CO.,
995 Ruby St., Rockford, Ill.

Regulations for Importation of Bees

The U. S. Department of Agriculture has announced the regulations under which bees and queens may be imported from foreign countries. Where it is shown that adequate necessity exists for the importation of adult bees for experimental or scientific purposes the Department will undertake to make such importation if it determines that it may be done with safety.

All such importations must be addressed to the U. S. Department of Agriculture, subject to examination and quarantine. All worker bees accompanying imported queens will be destroyed and fresh worker bees and a fresh mailing cage provided for each shipment.

No shipment will be forwarded until the Department is convinced that no disease dangerous to adult honeybees is present.

Provision is made for importations by any agricultural college or similar institution for the purpose of conducting experimental work, individuals who are conducting research work likely to be of public service, commercial queen breeders who urgently need queenbees for breeding experiments.

Full information concerning the Department regulations can be secured from the Bureau of Entomology at Washington, D. C.

A Wisconsin Field Meet

On Saturday, June 16, over 300 beekeepers from southern Wisconsin and northern Illinois gathered at a field meeting in the apiary of the G. B. Lewis Company, Watertown, Wis., the two principal talks of the day being given by Newton Boggs Extension Specialist in Bee Culture from Colorado, and by C. O. Yost, Deputy State Inspector of Apiaries, Indiana.

H. F. Wilson, President of the American Honey Producers' League; Dr. S. B. Fracker, State Inspector of Apiaries for Wisconsin; Miss M. Fischer, Secretary of the Wisconsin State Beekeepers' Association, and C. D. Adams, from the State Honey Grading Law Enforcement Department, also appeared on the program.

E. W. Atkins acted as Chairman of the meeting and at the close of the program of speeches gave a half hour demonstration of the proper supering methods for the maximum production of extracted honey.

REPORT OF DOMINION APIARIST

The report of the Dominion Apiarist for the year 1922 issued by the Dominion Experimental Farms, Department of Agriculture, at Ottawa, is an interesting 16 page pamphlet, giving information concerning the work done by the Bee Division for the year.

The report of the experimental work is especially interesting, particularly in relation to breeding problems.

Compulsory Spraying

A 60-acre tract in Yakima County, Washington, was badly infected with scale and the owners used no spray.

The horticultural commissioner ordered compulsory spraying of the orchard, and this was done the amount of cost being $821.40, which was assessed against the owner of the property. Unless the owner pays this willingly it is to be turned in as a charge to the county treasurer to be collected with his other taxes.

WHEN YOU COME to Madison, Wisconsin, August 13 to 18, 1923, to attend the Wisconsin Beekeepers Chautauqua and the DR. C. C. MILLER MEMORIAL MEETING, plan to visit the home of "Beeware," only 42 miles away, conveniently reached by rail or state highway. G. B. Lewis Company, Watertown, Wisconsin. **BEFORE YOU GO**

Save Extracting Combs--Prevent Spread of AMERICAN FOULBROOD

Do This Now!

1. Extract Honey and Pollen from Frames.
2. Spray Dry Extractor Frames with

Treat Frames Now---Prevent Spread of Disease by Robber Bees

New Drawn Combs cost you $1.50 in Honey used by Bees for Wax. Save this with 10c worth of B-H.

MAIL YOUR ORDER TODAY!

GENERAL LABORATORIES
MADISON, WIS.

General Laboratories, Madison, Wis.:
Please send me ____ gals. B. H.
Single Gals. _____ $3.00
5-Gal. Jugs _____ 12.50
[] Frt. [] Exp.
Name _____
Address _____

Save Half the Cost

By Using Our New All-Pine Honey Section Display Case

Sold with fittings, at a cost of approximately one-half that of the standard section shipping case. You will be more than pleased, not only with the price, but the sturdy build and excellent appearance of this new display case.

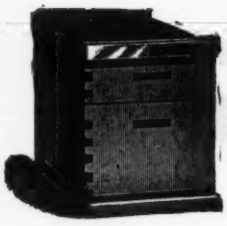
Use the coupon in asking for prices.

THE A. I. ROOT COMPANY of IOWA
COUNCIL BLUFFS, IOWA

The A. I. Root Co., of Iowa,
Council Bluffs, Iowa.
Gentlemen:
Please quote on the following containers:

Name _____

Address _____



MR. BEEKEEPER—

We have a large plant especially equipped to manufacture the supplies that you use. We guarantee all materials and workmanship. We ship anywhere. We allow early order discounts and make prompt shipments. *Write for free illustrated catalog today*

We pay highest cash and trade prices for beeswax

LEAHY MFG. CO., 90 Sixth Street, Higginsville, Missouri
J. W. ROUSE, Mexico, Missouri Texas Distributors, A. M. HUNT & SONS, Goldthwaite, Texas

HONEY WANTED

Our observations lead us to believe that as a general thing honey producers would be better off financially if they sold their honey crops in bulk as soon as produced. There possibly are a few exceptions.

However, we wish to remind beekeepers that we are ready at any time of the year to take in small or large lots of extracted honey.

Send us a sample and advise quantity you have and the price wanted.

HOFFMAN & HAUCK, Woodhaven, New York

Crop and Market Report

Compiled by M. G. Dadant

For our Crop and Market Report we asked the following questions of reporters:

1. How has the crop been, so far, compared to last year?
2. What are the prospects for the balance of the year?
3. How much honey is there left on hand? (Old honey).
4. In what condition are bees going into the late summer?
5. What is the demand for honey now?
6. What prices do you expect on comb and extracted honey, compared to last year?

THE HONEY CROP

Reports are available from practically all sections of the country in spite of the fact that the season is exceptionally late this year. The New England States report probably a little better crop than last year, as has New York. Pennsylvania will have a short crop, owing to the dry weather, and Ohio will hardly have as much as last year, although some reports are of an excellent white clover crop.

The entire Southeast is having only a fair crop and in many places much less than last year. Alabama seems to be in fair shape, the balance of the Southeast being not over 75 per cent of last year's honey crop.

In Texas the crop has been a practical failure and beekeepers are afraid to remove their surplus honey in many cases. They are afraid the bees will need the surplus as feed.

Indiana will have less spring honey than a year ago, and Illinois will probably not have 50 per cent as much.

Michigan reports from 75 per cent to 80 per cent of last year's white crop. Wisconsin reports are spotted, with an average of probably a little better than a year ago. The Minnesota crop will be average, while Iowa, especially in the eastern half, will be considerably less than last year. The sweet clover regions seem good.

Though prospects were good early in Missouri, the season has not gone forward well, and the honey crop is small. North and South Dakota are having a good crop, while Kansas and Nebraska are relatively poor.

In the inter-mountain territory, the crop seems to be at least as good as last year, with some reports from Colorado ranging considerably better than a year ago. Montana has as good a crop as a year ago; Idaho reports less.

In Nevada and Utah the crop is just opening up, and owing to the wet weather earlier, they anticipate a fair average, as do New Mexico and Arizona. Oregon and Washington will only have a fair crop and California has nearly a failure, with some beekeepers reporting as much as 20 per cent of last year and others practically nothing.

PROSPECTS IN ALL SECTIONS.

With very few exceptions, the prospects are good for the balance of the year. Copious rainfall has placed all honey-producing plants in good shape and the probabilities are that the honey crop from now until the end of the year will exceed that of a year ago.

CONDITION OF BEES.

Condition of bees, in all sections, seems excellent and this condition, together with the honey flow prospects, should militate toward a very fair flow during the rest of the season.

OLD HONEY ON HAND

There is very little old honey on hand anywhere, except possibly in the hands of the jobbers, who are gradually getting rid of it. Some little honey is reported in Montana and some yet in Utah and Idaho, with probably a car or two on the western slope of Colorado. Otherwise, old honey is practically cleaned up.

DEMAND FOR HONEY.

Most reports are to the effect that honey demand is yet slow.

In the Southeast all of the old honey has been cleaned up and practically all of the honey produced so far this season is already sold.

There is an undercurrent to the effect that the demand is starting out all over the country much better than it did a year ago. In fact, a year ago there was an extreme lull in honey demand, whereas this year there is already a demand for carload lots, as well as for small lots on the part of consumers direct.

HONEY PRICES.

Practically all reporters state that they expect as good prices as a year ago, and many of them expect an advance in both extracted and comb honey, of from 15 per cent to 25 per cent over what it was a year ago.

From the general outlook, gathered from the reports, and also from outside sources, it would seem that there will be a big shortage of comb honey this year and that comb honey should realize considerably higher prices than a year ago. A Colorado correspondent states that he has been offered $4 for comb honey in car lots F. O. B. his station and 10c per pound for white extracted.

A Michigan party states that Michigan comb honey should sell at a price of 30c per section to the retailer and relatively higher to the consumer.

Certain it is that California will have no comb honey to sell, and very little extracted, and the supply will have to be filled by other large producing centers.

Sugar prices are still up and indications are that they will remain relatively high, at least for the next two or three months or until the heaviest consumption season is past.

The economists tell us that we may expect a slump in the general business conditions later on in the fall, but that there will not be much slump in prices of farm products, from the fact that they are already as low as they can get in relation to other prices.

Under the conditions, we cannot help but be optimistic regarding the demand and the price to be realized for honey this fall, although we would urge against holding past the holiday season except to fill regular retail demand.

Honey prices should rule about as follows, minimum:

In the Eastern States, 5-lb. pail, $1.50; 10-lb. pail, $2.50; 60-lb. can, $10.80 retail; larger lots, jobbing, 12c to 13c per lb.

In the Central Western States, 5-lb. pail, $1.25; 10-lb. pail, $2.15; 60-lb. can, $10.20. Jobbing prices, extracted, 11c to 12c per pound.

Inter-mountain States, 5-lb. pail, $1.00; 10-lb. pail, $1.75; 60-lb. can, $9.00, retail. Jobbing price, white, honey, 9c to 11c per pound.

In our opinion comb honey should sell in the inter-mountain territory at near $5.00 per case for No. 1. In the Central West, it should realize $6.00 to $6.50 and about the same in the Eastern States. Unfortunately, insufficient data is at hand here to make recommendations on the Southern States, but we believe that the Texas prices will range higher than a year ago, which is a very fine indication in view of the fact that Texas marketed all of their honey last year and at relatively better prices than the balance of the country got.

All in all, conditions look very much better now for honey demand and honey prices than a year ago, both because of a bigger demand and of a less supply with a smaller carry-over.

CLASSIFIED DEPARTMENT

Advertisements in this department will be inserted for 5 cents per word, with no discounts. No classified advertisements accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 15th of each month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

As a measure of protection to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

BEES AND QUEENS

NEW HONEY IN AUGUST—Atwater.

MERRILL'S QUEENS—$1.00 each.
R. E. Merrill, Muncy, Pa.

TRY PETERMAN'S QUEENS—They mean 100 per cent quality, select, thrifty layers, well laid up before caging bred from Jay Smith choice breeders by a thoroughly experienced breeder who is absolutely honest and reliable. Repeat orders prove this. Circular free. Prices, after July 1: 1, $1; 6 for $5.50; 25 at 90c each.
H. Peterman, Lathrop, Calif.

GOLDEN ITALIAN QUEENS—Produce bees solid yellow to tip; disease resisting, prolific, gentle and good honey gatherers. Untested, $1.25; select untested, $1.50 each; tested, $3.00.
Dr. White Bee Company, Sandia, Texas.

FOR SALE—Missouri bred Italian queens, $1 each; 6 for $5. L. E. Altwein,
1206 N. 13th St. St. Joseph, Mo.

FOR SALE—Bright three-banded Italian queens, 1 to 12, $1.25 each; 13 to 25, $1.15 each; 10 per cent discount when ordered 4 weeks or more in advance. Safe arrival and satisfaction guaranteed. Ready to ship June 1 to June 10.
R. B. Grout, Jamaica, Vt.

HARDY ITALIAN QUEENS, $1 each.
W. G Lauver, Middletown, Pa.

BEES BY THE POUND, ALSO QUEENS—Booking orders now. Free circular gives prices, etc. See larger ad. elsewhere.
Nueces County Apiaries, Calallen, Texas.
E. B. Ault, Prop.

SEE my display ad. in this number.
Jes Dalton, Bordelonville, La.

BEES AND QUEENS at reduced prices. Cypress hives for sale. Write for terms.
Otto Diestel, Elza, Ga.

PETERMAN'S 100% QUEENS—$1 each, 6 for $5.50. Give them a trial.
H. Peterman, Lathrop, Calif.

THREE-BAND bright Italian queens for 1923. Guaranteed purely mated. Good hustlers and gentle. One, $1.00; 6, $5.00; 12, $9.00. Write for folder or the principle of introducing. Orders booked as received.
J. Frank Diemer, Liberty, Mo.

FINEST ITALIAN QUEENS—$1.00 each.
Wm. R. Stephens, Wingate, Ind.

RUSH YOUR ORDER—Pure Italian queens: Selected tested, 1, $1.25; 12, $12. Selected untested, 1, 80c; 12, $8.00; 100, $60. Safe arrival and satisfaction guaranteed; no disease; ship nothing but the best.
W. C. Smith & Co., Calhoun, Ala.

FOR SALE—Golden Italian queens. One untested golden Italian queen, $1. One tested queen, $2. Safe arrival and satisfaction guaranteed. J. F. Michael,
Rt. 1, Winchester, Ind.

THREE-BANDED ITALIAN QUEENS—Select, untested, $1.00. Select, tested, $1.50. Two-pound package bees with select untested queen, $4. Reference: The Selma National Bank, Selma, Ala. Satisfaction given.
J. Allen, Catherine, Ala.

FANCY THREE-BAND BEES nuclei and queens. Queens, balance of season, select untested, $1 each, $10 a dozen. Select breeding queens $6 each.
J. L. Morgan, Apalachicola, Fla.

PURE ITALIAN QUEENS—Untested, $1.00; tested, $1.25; 2-lb. package, $2.75. Add price of queen wanted. Safe arrival guaranteed after May 10. Write for prices on colonies and other specials.
Birdie M. Hartle,
924 Pleasant St., Reynoldsville, Pa.

QUEENS bred from choice Jay Smith breeders, $1 each, 6 for $5.50; every queen guaranteed select, thrifty layer.
H. Peterman, Lathrop, Calif.

PURE Italian and Carniolan queens, the best of either race, $1 each. J. E. Wing.
155 Schiele Ave., San Jose, Calif.

FOR SALE—1923 Golden Italian queens, $1; dozen $10. Safe arrival and satisfaction guaranteed.
J. J. Sanford & Son, McKenzie, Ala.

CARNIOLAN-ITALIAN CROSS—Finest utility queens yet. While they last, $1 each.
Geo. W. Coltrin & Son, Mathis, Texas.

PINARD'S quality of Italian queens and package bees. Laying, untested queens, $1 each. Write for prices on large lots. Circular free.
A. J. Pinard, Morgan Hill, Calif.

QUEENS for the balance of the season of 1923. Write and get our prices.
O. P. Hendrix & Son, West Point Miss.

SELECT UNTESTED three-banded leather colored Italian queens by return mail at $2. Orders booked 15 days ahead, $1.50. Send for prices on large orders. These bees hold Indiana record for comb-honey average per colony in a run of ten years.
Charles Kennard, Knightstown, Ind.

REDUCTIONS in price on golden queens July 1st: selected queens, one, 90c; half dozen, $5; dozen, $9. Pure mating, safe arrival in U. S. A. and Canada. Health certificate furnished. Tillery Bros.,
Rt. 5, Greenville, Ala.

WARRANTED pure mated Italian queens, $1.25 each; 25 or more, $1.10 each. Mailed in special sure introducing cages. No honey used in candy.
Daniel Danielsen, Brush, Colo.

TRY MY 3-frame nucleus Caucasian or Italian race, reared from the very best mothers, which occupy 93 standard frames. Queens, tested, $1.50; untested, $1. Only Italians, by return mail. No disease.
Peter Schaffhauser, Havelock, N. C.

BIG, bright golden Italian queens. The kind that are bred for beauty and also honey gathering qualities. We guarantee to please you. Price 95c each, 6 for $5, 12 for $9.50. Tested $1.50.
Honoraville Bee Co., Honoraville, Ala.

GOLDENS—From select breeders. Satisfaction and safe arrival guaranteed. Select untested, $1 each, 12 for $10, 25 or more 75c each. Tested $1.75 each, 12 for $18.00.
Sunny South Apiaries,
Box 838, San Antonio, Texas.

UNSURPASSED ITALIAN QUEENS—After July 1, untested: 1, $1.; 6, $5.75; 12, $11; 50, $45; 100, $85. Tested, 1, $2; 6, $11. Every queen is mated and laying before she is mailed.
J. D. Harrah, Freewater, Ore.

WILLOW DELL 3-band Italian queens are good queens, winter well, are good producers and will please you. If you haven't tried them, do it now. One untested queen, $1.15; 6 for $6; 12 for $10.
H. S. Ostrander, Mellenville, N. Y.

GOLDEN ITALIAN QUEENS for fall requeening. The big, bright, hustling kind. Satisfaction guaranteed. Price $1 each, six for $5, 12 for $10, 100 for $70. Tested $1.40 each. E. F. Day, Honoraville, Ala.

FOR SALE—Golden Italian queens: Untested $1, 6 for $5.40, 12 or more 80c each; tested $1.50; select tested $2.50. No disease of any kind. Safe arrival.
D. T. Gaster, Rt. 2, Randleman, N. C.

QUEENS—High grade Italian queens, three-banded; also goldens. Untested, $1 each; twelve, $9.00; tested, $1.50 each; twelve, $15. Package bees. Safe arrival and satisfaction guaranteed.
P. O. Watkins, Cullasaja, N. C.

FOR SALE—Three-banded Italian queens, untested, $1 each; 6, $5.50; 12, $10. Tested queens, $2 each.
Robert B. Spicer, Wharton, N. J.

3-BANDED QUEENS—$1.00 each, $85 per 100. Bees in any way desired.
Walker & Shaner, Scotts Station, Ala.

FOR SALE—Golden Italian queens. Untested, $1; six, $5.40; twelve or more, 80c each; tested, $1.50 each. No disease. Safe arrival. Hazel V. Bonkemeyer,
Rt. 2, Randleman, N. C.

REDUCED PRICE—Italian queens, very beautiful, but not bred for color alone; very profitable, produce bees that are gentle and hustlers. One introduced into each of your colonies in summer will overcome so much winter loss. Mated to Italian drones. Clipped free when requested. One, 75c; six, $4.00; twelve, $7.50; virgins, 25c each. Satisfaction or money back.
Crenshaw County Apiary, Rutledge, Ala.

CARNIOLAN QUEENS—Pure silver gray Alpine stock. Good queens, ready to go. Normal conditions. Satisfaction guaranteed. Price, untested: 1, $1.00; 6, $5; 12, $9; 25 or more, 70c each.
M. G. Ward, Lathrop, Calif.

HOLLOPETER'S quality queens and satisfactory service will please you. Untested queens from finest three-banded stock, each $1.25; 6 to 25, $1 each. No disease and safe arrival guaranteed.
J. B. Hollopeter, Rockton, Pa.

ITALIAN QUEENS—Three-banded, select untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness and perfect markings. Price, August and September, $1 each, 6 or more 90c each. Send for circular.
J. H. Haughey Co., Berrien Springs, Mich.

FOR SALE—Golden Italian queens; untested $1 each, 6 for $5.40, 12 or more 80c each. Tested $1.50 each. Select tested $2.50 each. No disease of any kind. Safe arrival and satisfaction guaranteed.
Sam Hinshaw, Randleman, N. C.

THREE-BANDED ITALIANS—My stock is continuously developed by trial and selection from the best and most popular strains. When I can produce or discover better they will be adopted. Untested, $1 each, six for $5.50. Tested, $2. Carnitalians, a remarkable cross derived from pure imported Carniolan mothers and Italian drones. Tested $2 each.
Protheroe, Rustburg, Va.

QUEENS; QUEENS—Quality Italians. To make more customers for our queen and package business we will send one queen only to each person sending 50c.
J. J. Scott, Crowville, La.

CONNECTICUT QUEENS—Highest grade 3-banded Italians. Untested, 1, $1; 6, $5.50; 12 $10; 50, $40; 100, $75. Safe arrival and satisfaction guaranteed.
Connecticut Valley Apiaries,
A. E. Crandall, Berlin, Conn.

"SHE-SUITS-ME" queens the rest of the season, $1 each.
Allen Latham, Norwichtown, Conn.

3-BANDED QUEENS—Fine, like you used to get from here, $1 each, $11 per dozen. Write me for prices on large lots from my Alabama yards.
Curd Walker, Jellico, Tenn.

TENNESSEE THREE-BAND ITALIANS — large, vigorous and prolific. This add means good queens; State health certifivate issued July 13. 1 to 5, $1.25; 6 to 11, $1.08; 12 or more, 95 cents.
William F. Morris, Hendersonville, Tenn.

GOOD ITALIAN QUEENS—Bred for business; gentle, safe arrival and satisfaction guaranteed. Price, 1, $1; 6, $5.50; 12 or more, 90c each. Ronald Kirk,
R. 1, Box 46, Rockton, Pa.

MINNESOTA RAISED HUSTLING ITALian Queens, $1.00.
Lorenzo Clarke, Winona, Minn.

SWARTS' American golden queens produce golden bees of highest quality. Untested, $1.50 each, six for $7.50. Satisfaction guaranteed.
D. L. Swarts, Rt. 2, Lancaster, Ohio.

BIG, BRIGHT ITALIAN QUEENS, 75c each, by return mail.
P. B. Skinner, Greenville, Ala.

REQUEEN NOW WITH SIMMONS Queens. Fairmount Apiary,
Livingston, N. Y.

"EXTRA GOOD" queens—Golden or three-banded. One, $1.25; dozen, $13. Prompt delivery and satisfaction.
The Scott Apiaries, La Grange, Ind.

FATHER JOHN'S 3-banded Italians for queen breeders and experts; 100 per cent more brood this spring than my best queen for 25 years. Mated separately on extracting frames to selected drones. Guaranteed excellent color, hardy, very gentle. Select untested, $1.25; select tested, $2.00.
Rev. J. Dewild, Wautoma, Wis.

SPECIAL OFFER—For the next 30 days we will sell tested Italian Queens at $1.00 each; 6, $5.00. All queens guaranteed; no better strain of bees in the U. S. A.
Fred Leininger & Son, Delphos, Ohio.

HONEY AND BEESWAX

FOR SALE — White and amber extracted honey. Write for prices. State quantity wanted. Dadant & Sons, Hamilton, Illinois.

FOR SALE—Choice clover extracted honey in new cans and cases, in carload lots or case lots. Quality unexcelled. Write for prices stating quantity desired.
J. D. Beals, Oto, Iowa.

FOR SALE—Our own crop white clover and amber fall honey in barrels and cans; also white alfalfa in cans. State quantity wanted and we will quote prices. Samples on request.
Dadant & Sons, Hamilton, Ill.

FOR SALE—White honey in 60-lb. cans; also West Indian in 50-gal. barrels. Samples and prices on request. A. I. Root Co.,
23 Leonard St., New York City, N. Y.

BEESWAX WANTED—We need large quantities of beeswax and are paying good prices now. Ship to us at Hamilton, Ill., or Keokuk, Iowa, or drop us a card and we will quote f. o. b. here or your own station, as you may desire. Dadant & Sons, Hamilton, Ill.

HONEY FOR SALE—In 60-lb. cans. All clover, dandelion and clover, clover and basswood. State quantity wanted. Quality unexcelled.
Edw. Hassinger, Jr., Greenville, Wis.

HONEY FOR SALE—In 60-lb. tins; water white orange, 15c; white sage 13c; extra light amber sage, 11c; white clover, 13c; for immediate shipment from New York.
Hoffman & Hauck, Woodhaven, N. Y.

NEW crop comb honey now ready; No. 1 white, $7 per case; No. 2, $6; 24 sections to case.
H. G. Quirin, Bellevue, Ohio.

FANCY CLOVER HONEY in new 60-lb. cans 2 to case; new crop. Sample 20c.
D. R. Townsend, Northstar, Mich.

FOR SALE—Clover and amber honey; also No. 1 comb.
Lewis Klaty, Carsonville, Mich.

FOR SALE—Extra fancy white clover honey, 12½c a pound. White clover and heartsease, 10c. Sample bottle by mail, 15c.
J. M. Gingerich, Kalona, Iowa.

SUPPLIES

NEW HONEY IN AUGUST—Atwater.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so send us a list.
American Bee Journal, Hamilton, Ill.

CONNECTICUT and Rhode Island headquarters for Root's Beekeepers' supplies.
A. W. Yates, 3 Chapman St., Hartford, Conn.

WESTERN BEEKEEPERS—We can demonstrate that you can save money on buying bee supplies of best quality. Write for our latest price list.
The Colorado Honey Producers' Association,
Denver, Colo.

FOR SALE—Genuine Hoffman shallow extracting frames, $2.75 per 100. Brand new, in original boxes.
Bert Willard, Plainview, Ark.

FOR SALE—Extractor, smoker and veil in good condition.
Thos. Cordner, Sparta, Wis.

FOR SALE—Novice extractor; latest; like new, $21.
Lorenzo Clarke, Winona, Minn.

FOR SALE

FOR SALE—Good second-hand 60-lb cans, 2 cans to a case, boxed, at 60c per case, f. o. b. Cincinnati. Terms cash.
C. H. W. Weber & Co., 2163 Central A e.
Cincinnati, Ohio.

IN LIQUIDATION of an estate there will be sold some time this summer or early in the fall, one of the best locations in eastern Wisconsin for an apiary, with miles of basswood near and in midst of clover region; exquisite view, substantial residence, orchard, etc.; 4 acres at edge of incorporated village; good transportation facilities; adapted for maintenance of several hundred swarms. Address, Administrator,
809 Tonka St., Appleton, Wis.

FOR SALE—300 colonies of bees with complete extracting equipment. Your correspondence solicited.
Scott McClanahan, Notus, Idaho.

FOR SALE—Our own crop white clover and amber fall honey in barrels and cans; also white alfalfa in cans. State quantity wanted and we will quote prices. Samples on request.
Dadant & Sons, Hamilton, Ill.

FOR SALE—100 or less colonies of bees in 10-frame L. hives. Wired foundation in frames. An extra nice lot.
A. W. Smith, Birmingham, Mich.

FOR SALE—In sunny Idaho, the land of big honey yields and where crop failures are unknown. A thousand colonies in prime condition; 10-frame L. hives. Buy now and secure this season's crop. Reason for selling: wife's health requires lower altitude. Address 273 South 1st West St., Rexburg, Idaho.

FOR SALE—160 colonies in Modified Dadant hives, including crop. Priced right. Write
Frank Van Haltern, Wathena, Kans.

FOR SALE—Sixty colonies healthy bees; everything up-to-date. Write me at Palestine, Ill. Duane Shaw.

FOR SALE—One hundred forty-five colonies of bees with all necessary equipment. Good location; have had as high as twenty-seven thousand pounds extracted honey in one season; forty-five acres land with equipment for farming; very good buildings. Will consider a good payment down; balance terms to suit. Reason for selling, on account of sickness. Located in southern part of state. For particulars write W. C. Banker, Spicer, Minn.

FOR SALE—15 colonies Italian Bees, $5.00. Must sell. F. Olson, 1923 Grand,
St. Paul, Minn.

FOR SALE—25 8-frame hives of bees with super; one new extractor; cheap.
Earl Alvers, Pomona, Florida.

MISCELLANEOUS

NEW HONEY IN AUGUST—Atwater.

THE BEE WORLD—The leading bee journal in Britain, and the only international bee review in existence. It is read, re-read and treasured. Will it not appeal to you? Specimen copy free from the publishers. The Apis Club, Benson, Oxon, England. Send us a postcard today. It is well worth your little trouble.

THE "Archiv fur Bienenkunde" is a valuable scientific publication. "It merits the appreciation of all beekeepers acquainted with the German language," says the Bee World (January, 1923). "The Archiv fur Bienenkunde, now in its fifth volume, is of as high grade as any bee journal which comes from abroad, dealing especially with the scientific aspects of beekeeping," says Gleanings in Bee Culture (February, 1923). Annual subscription, $1. Specimen copy free. Publisher, Theodor Fisher, Freiburg im Breisgau, Kirchstrasse 81, Germany.

WANTED

NEW HONEY IN AUGUST—Atwater.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 6c a pound for wax rendering. Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

BEESWAX WANTED—We need large quantities of beeswax and are paying good prices now. Ship to us at Hamilton, Ill., or Keokuk, Iowa, or drop us a card and we will quote f. o. b. here or your own station, as you may desire. Dadant & Sons Hamilton, Ill.

WANTED—Comb honey.
A. S. Jamison, 690 Adams Ave.
Memphis, Tenn.

WANTED—Extracted honey, clover and basswood, in ton lots or more.
J. C. Abbott, Northampton, Mass.

WANTED—White clover extracted honey.
W. A. Hunter,
1609 S. 5th St., Terre Haute, Ind.

WANTED—One car light amber alfalfa honey. W. A. Hunter
1609 S. 5th St. Terre Haute, Ind.

WANTED—Two-frame honey extractor; good condition. H. E. Leveling,
640 N. 29th St., East St. Louis, Ill.

WANTED—A few tons of extracted clover honey. Mail sample and quote lowest cash price for the lot.
A. W. Smith, Birmingham, Mich.

WANTED—2-frame used extractor.
Rev. L. Theis, R. Rt. 1, Atchison, Kans.

BELGIAN FIRM wishes to correspond with a breeder of golden Italians, who would guarantee safe arrival, for sales in Belgium. Write. J. Mees, Abeilles,
Herenthals, near Antwerp, Belgium.

WANTED—Two-frame extractor in good condition.
Albert Forcht, Hazel, S. Dak.

WANTED—Work or share deal by experienced honey producer, five years experience treating foulbrood. References furnished. Ed. Lynam, Lawton, Iowa.

A NEW BEGINNER'S BOOK

H. G. Rowe, managing editor of "Gleanings," gives a delightful new slant to an old subject, that of beekeeping for beginners. In a nicely arranged and well illustrated book of 120 pages, entitled, "Starting Right With Bees," he gives scientific advice to the uninitiated from the standpoint of one who has just emerged from the chaos of problem solving in his own period of inexperience. We have enjoyed reading it.

The Peach and Apple Crop

The Kansas City Packer in one of its late issues reports that prospects for peaches are 70 per cent of a full crop.

The Central West is the poorest, with the best areas in the Inter-Mountain and Western areas.

Prospects are that the apple crop will be slightly better than in 1922.

The pear crop is estimated at 75 per cent of 1922.

MONEY AND SATISFACTION FOR YOU

Save one profit by buying direct from factory. Standard, Jumbo and Modified Dadant Hives; cedar or pine. Write for catalog.
R. E. BURDICK CO.
Sunnyside, Wash.

Berry's Reliable Italian Queens and Service

Twenty-seven Years of Select Breeding

Our queens continue to please old customer friends. Try them and learn the reason why. Little booklet describing our strain and methods of production mailed on request.

Price List of Our Queen Bees

Now ready to mail, or as per booking.

Select untested, 90c each; 12 to 50, 85c; 50 to 100 up, 75c each. Virgins, 40c each.
Select tested, $2 each; 12 to 50, $1.85; 50 to 100 up, $1.75 each Breeders, $5 and up.

We guarantee our queens to be purely mated, to arrive in perfect condition and to give absolute satisfaction. Wings we clip free of charge, when requested.

M. C. BERRY & CO., Box 697, Montgomery, Ala., U. S. A.

Three Banded Italian Bees and Queens by Return Mail and Express

Mr. Beekeeper: I am prepared to take care of your rush orders. I have the stock, equipment and experience necessary to produce queens and bees. My queens are reared by men who know how. Each and every queen or package positively guaranteed to reach you in perfect condition and to give perfect satisfaction. You are the judge and jury. A trial order will convince you. Orders shipped when specified or money cheerfully refunded. I want every beekeeper on the continent to give my strain of bees a trial. I have fixed the price right, so you can. You cannot lose a penn because I stand behind every bee I ship. Service and satisfaction a specialty.

PRICES—QUEENS:

	1	6	12	100
Untested	$ .75	$4.20	$ 7.50	$60.00
Select untested	.90	5.00	9.50	70.00
Tested	1.50	8.00	16.00	

Pound Packages with Select Untested Queens by Express

2-lb. packages, 1 to 12, $4.00 each; 12 or more, $3.90 each. 3-lb. packages, 1 to 12, $5.00 each; 12 or more, $4.90 each.

THE FARMER APIARIES, Ramer, Alabama

REQUEEN NOW

The best authorities all advise you to requeen now in order that the young queens will have time to build up a populous colony by the time they are to be put up for the winter.
Choicest Italians at the least possible price.

One untested queen	$ 1.00
Ten untested queens	7.50
One hundred untested queens	60.00
One tested queen	$ 1.25
Ten tested queens	10.00

Our Guarantee of Queens:

We guarantee safe arrival and satisfaction on all queens, and will refund your money or replace any dead or unsatisfactory queens, provided you return her at once in the cage you received her in, with your name and address on it.

THE STOVER APIARIES, MAYHEW, MISS.

MONEY SAVED

BEE SUPPLIES

TIME SAVED

Roots goods at factory prices with WEBER'S Service

Send us a list of your wants and we will quote prices that will save you money

C. H. W. WEBER & CO., 2163-65-67 Central Ave., Cincinnati, O.

HONEY CONTAINERS

5-lb. friction top pails, per reshipping case of 12	$ 1.10
10-lb. friction top pails, per reshipping case of 6	.90
5-lb. friction top pails, per crate of 100	7.00
5-lb friction top pails, per crate of 200	13.50
10-lb. friction top pails, per crate of 100	10.00
60-lb square honey cans, per case of 2 cans	1.25
60-lb. square honey cans, per case of 1 can	.80
60-lb. square honey cans, in bulk, each	.40
16 oz. round glass jars, per reshipping case of 24	1.35
6½-oz. tin top tumblers, per reshipping case of 48	1.60

Prices F. O. B. Boyd, Wis.

Write for prices on comb-honey shipping cases.

Our cases are neat, smooth and strong, made of whitewinter sawed basswood.

Sections

No. 2 4¼x4¼x1⅞ two beeway sections, per M $9.50

We have an over-supply of these sections and are offering them at this reduced price for a limited time only.

We carry a full line of Bee Supplies. Write for our free descriptive catalog and price list.

AUGUST LOTZ COMPANY, Boyd, Wis.

SELLING HELPS

AN ATTRACTIVE PACKAGE IS HALF SOLD

LABELS

Our line of honey labels is the best in the market. No label ever offered equals our No. 117, in five colors, which sells at $4.75 per 1,000.

Our series 22 to 28 is an attractive form, printed in five sizes, suitable for 16-ounce jars to 10-pound pails, and is a big seller. Package of sample labels, with prices, sent free on request.

LEAFLETS:

Our 4-page leaflet in colors is an attractive bit of advertising for the beekeeper to place in the hands of his prospective customers. It gives just the information that the consumer wants in condensed form. With your name and address, $2 for 100, $7.50 for 500, $11.50 for 1,000.

SIGNS—"Honey for Sale"

Heavy card signs 9½x11½ or 5½x14 inches, as preferred, 15 cents each, or $1.25 per dozen, postpaid. These cards put up by the roadside will help sell your honey. Be sure to state which size you want when ordering.

Everything in Printing for the Beekeeper.

AMERICAN BEE JOURNAL, HAMILTON, ILLINOIS

For American Foulbrood Use Dr. Hutzelman's Solution

Its Chief Use is

For DISINFECTING Combs

in which there is American Foulbrood

Combs after treatment are as good as they were before infected. Write for information which will be sent on request.

J. C. HUTZELMAN, Glendale, O.

Canadian Distributor, DR. C. J. DEVINS, Aurora, Ont.

Needed by Every Beekeeper Good Queens In Every Queen and Package

There is a guarantee of satisfaction that you have a right to expect
BUY FOREHAND'S 3-BANDS, YOUNG AND HUSKY

The three vital needs of successful honey production are, GOOD QUEENS, GOOD MANAGEMENT and GOOD LOCATION. You furnish one, Nature one and I furnish the other. But you must be the judge of all. You don't want a location in a desert, neither do you want poor queens. You have the same right to choose and reject queens as you have to choose your location. My guarantee allows you this.

Your dollar's worth or your dollar back. Order now and get your bees and queens when you want them. Ten per cent is all that is required with order.

Untested ..... $1.00 each; 10 or more, $ .90 each
Select untested ..... $1.25 each; 10 or more, $1.25 each

	1-4	5-11	12-24
Tested	2.50	2.45	2.40
Select tested	4.00	3.95	3.50

	1	25 and up
One pound pure Italian bees with young queen	$3.00	$2.90
Two pounds pure Italian bees with young queen	5.00	4.75
Three pounds pure Italian bees with young queen	6.00	5.75

All bees and queens guaranteed to reach you in good condition in the United States and Canada.
Write for prices on large lots.

N. FOREHAND, RAMER, ALABAMA

JENSEN'S QUEENS JENSEN'S

THREE BAND ITALIANS ONLY. WORTH TWICE OUR PRICE

Untested, ...75c each; 50, $35.00; per 100, $65.00
Select untested, add 25c per queen. Tested $1.25 each
These prices hold balance of season.

Start now laying the foundation for next year's work. The first consideration is good queens like ours. During the next two or three months will be the ideal time to requeen. Thus you are assured of having a sufficient number of young bees to start the winter, and the queens will have the needed vitality to withstand the strain of heavy spring brood-rearing necessary to insure the maximum honey.

Our cells are produced in powerful colonies; queens hatch, mate and start laying in large nuclei of three and four frames which are interchangeable with our other hive equipment, as nearly as possible to natural colony conditions. CAN YOU BEAT IT?

We have never had any disease. Inspection certificate with each shipment. Packed in large cages with plenty of young bees. We guarantee safe arrival and satisfaction. Wings clipped free on request. We are forced to continually enlarge on our several queen-yards. WHY? For a square deal address your orders to

JENSEN'S APIARIES, CRAWFORD, MISS.

For years we have been shipping thousands of pounds of bees all over the U. S. and Canada

Order Direct from this Ad.

We are prepared to take care of your rush orders

2-pound package bees, $3.75 each, 25 or more, $3.60 each.
2-frame nuclei same price as 2-pound packages.
3-pound package bees, $5.25 each; 25 or more $5.00 each.
3-frame nuclei same price as 3-pound packages.

QUEENS FREE when 25 or more packages are ordered. For less than 25 lots, add the price of queen wanted.
Untested queens, $1.00 each, 25 or more 85c each, $70.00 per hundred.
This is a special SALE on untested queens of high quality.
Select untested, $1.70, 25 or more $1.50 each. Tested $2.25 each, 25 or more $2.00 each.
Select tested $2.65 each, 25 or more $2.25 each. Breeders $5.00 to $15.00.

ITALIAN CARNIOLANS GOLDENS

NUECES COUNTY APIARIES, Calallen, Texas

ACHORD QUEENS

Honestly Bred.
Honestly Advertised.
Honestly Priced.

Superior honey-producing stock. Bred in two of the largest, best equipped queen-rearing apiaries in the south. Vigorous, nicely marked, good-natured, three-banded Italians.

Promptly mailed to you in large, clean cages with 1923 inspection certificate.

Select untested, $1 each; 5 for $4.50; 10 for $8; 20 or more. 75c each. Select tested, $1.50 each.

Safe arrival guaranteed if you will assist us by asking your rural carrier to notify you of their arrival and not leave them in a hot mail box. Large or small orders filled with equal promptness, with queens guaranteed to please you.

W. D. ACHORD, Fitzpatrick, Ala.

QUEENS OF

Moore's Strain

OF ITALIANS PRODUCE WORKERS

That fill the supers quick
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.
Untested queens, ... $1; 6, $5; 12, $9
Select untested ... $1.25; 6, $6; 12, $11
Select test., $2; Extra select test., $3
I am now filling orders by return mail.
Safe arrival and satisfaction guaranteed. Circular free.

J. P. MOORE, QUEEN BREEDER.
Route 1, Morgan, Kentucky.

Mott's Northern Bred Italian Queens

Select untested, 1, $1.00; select guaranteed pure mated, $1.25; select tested, $2.50. Virgins, 60c. Plans "How to Introduce Queens," 25c; 172 miles from Windsor, Canada. Save the vitality of your queens. Bees per pound, June delivery.

E. E. MOTT,
Glenwood, Michigan.

BEES — ITALIAN BEES — BEES

Full colonies with Italian queen at $15.00 3 for $30.00.
3-frame nucleus with Italian queen at $6.00.
3-lb. package with Italian queen at $5.50, 5 at $5.00.
No disease. Safe arrival and satisfaction guaranteed. Van's Honey Farms,
Van Wyngarden Bros., Props., Hebron, Ind

INDIANOLA APIARY CO.

Italian bees and queens delivered as follows:

1-lb. package with untested queen	$3.25
2-lb. package with untested queen	5.25
3-lb. package with untested queen	6.25
Untested queens, each	1.00
Tested queens, each	1.50

Satisfaction guaranteed. Prompt service a specialty.

J. W. SHERMAN, Indianola Apiary Co.
Valdosta, Georgia.

The Engravings appearing in this publication are made by the

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Engravers, Electrotypers, Commercial Photographers, Photo Retouchers, Designers

Write if you need designs of Signature Cuts, Letter Heads, Labels, Etc.

QUALITY QUALITY

BURR COMBS

Gossip Around the Office

By L. C. Dadant.

What Job Would You Choose?

If you had your choice of a job about the Dadant establishment, what would you do? Well, if you didn't have to worry about whether there would be enough beeswax to run through the season or have to figure out just how many cars of Beeware to order so as not to have too big a carry-over and yet have plenty to fill the orders promptly, or if you didn't have to tell Billy Beeman why he lost that queen by turning her loose in a hopelessly queenless colony, or explain to John Close Dealer why you can't pay as much for beeswax in August as in April, or if you didn't have to settle a quarrel among the factory flappers as to who would ride on the front seat of the jitney—I say if you didn't have to do these things and a great many other things that are tied around the neck of the factory boss, you'd take care of the bees.

What? With the poor seasons, foulbrood, robbing and the hundred other things that hector and discourage a beekeeper in this locality? Yes, even with all these hindrances, all of which are forgotten when the honey flow is on. Yes, there are a lot of hardships in caring for several hundred colonies of bees in a country like western Illinois, where clover is not dependable and where foulbrood is on the rampage. Take 1908, when right in the face of the finest prospect ever, we had to treat four hundred out of five hundred colonies for A. F. B. That was no joke. Neither was 1911, when honeydew hung to the trees like gum drops and bees harvested and stored it, although the following spring it was almost like so much poison.

Then again—but why dwell on the unpleasant days? Why not think of 1913, when white clover nectar ran like water in a continuous eleven-weeks flow? That was the year that Doctor Miller made his World's Record. Did you know that one of the reasons for Dr. Miller's success in producing big crops was that he used a split bottom-bar frame and supported his foundation with vertical splints, securing in this way solid frames of worker brood from top-bar to bottom-bar?

After all, the vertically wired foundation and slotted bottom-bar frames are but an outgrowth of the ideas of this wonderful man's fertile brain.

Then think of the other years when nectar was plentiful, and the bees gentle, and the days hot, and the bath tub heaven, and your hair smelled of smoke, and your wife commented on the good appetite you had! Yes, you would **keep bees.** No office work for you, if you could help it—where Frank Pellett can call every fifteen minutes (seems like) to know if you have written that page for "Burr Combs" this month—I'll say you'd **keep bees!** Especially if you could have seasons, like 1916, when we had but about 25 natural swarms, and harvested 125,000 pounds of honey.

Still, even in the supply business there's a lot of satisfaction. Dealing with old customers whose names are familiar and whose numbers are legion, is a great pleasure. It's a real joy to get letters telling how well goods please, especially when one remembers that, as a rule, a satisfied customer usually keeps quiet. The thorny path is the one where an error has accidentally been made in the heat of the season. Then everything is hot.

Did you ever look over the old files of the Bee Journal, say twenty or thirty years back and read over the advertisements (not the articles) just to see who was who in those days among bee supply manufacturers and dealers? From 1903 to 1923 many bee supply factories and dealers started up and discontinued. Why? Why couldn't they make it pay? You'll have to answer that for yourself. All I can say is that the way of the manufacturer and dealer is not always strewn with roses. There is hard work and plenty of it. With hopes and discouragement, with losses and gain, and a lot of worry when the honey crop fails. If the beekeeper does not prosper, the dealer and manufacturer are bound to suffer.

It's hard to set prices on goods, especially if there is an advance and you know that there will be a lot of unfavorable comment. But then you also know that failure to advance prices may mean loss. Very few beekeepers realize that the manufacturer had rather, a hundred times, reduce prices than raise them. That he would far rather pay a higher price for the beekeepers' product than quote a decline. It's a lot easier to tell your customer that there is a little reduction than to announce an advance. After all, we're all human and some of us in the manufacturer's class are beekeepers and know both sides of the story.

BEESWAX AND COMBS

How many old combs are turned into beeswax and how many are wasted? Just as a guess I would say that not over 50 per cent of old combs in the U. S. A. reach the rendering press. This guess is based on the fact that according to the census the bee supply dealer has only a small percentage of the beekeepers' names on his list. Many of these, even, do not save their combs; this, too, in spite of the fact that beeswax, next to honey, is the beekeeper's most important source of revenue. Thousands of pounds of beeswax could be saved with but little effort, as many supply dealers and manufacturers are equipped to render old combs and cappings into beeswax.

The shipping of old combs and cappings, however, should be done with care. Because of the prevalence of diseases, many beekeepers do not even feed back their own honey. Combs and cappings containing **any honey** at all should be either boiled and drained or packed in a container from which the honey **cannot leak** during shipment.

Combs containing foulbrood had best be destroyed or rendered in the beekeeper's own workshop. If it is necessary to ship them they **must be boiled** for 30 minutes, at least, to destroy the foulbrood germs, and then drained dry. Because of slow movements of freight shipments, every lot of old combs that will drip honey is a serious menace to beekeepers, not only at shipping point and destination, but all along the line of transportation as well. Many states have laws prohibiting the shipment of combs or other goods from diseased yards.

Weight of Foundation

What weight foundation shall I use—how many sheets to the pound? The average beekeeper is inclined to jump at the conclusion that the more sheets per pound the cheaper it will be for him; he considers first cost only. Some of our most extensive beekeepers, however, when placing their foundation orders, specify **five sheets** to the pound in the standard Langstroth size. Why? Because they realize that the extra weight is a big advantage to the bees; that the extra wax in the cell walls gives the bees a chance to draw it out even if there is no flow. Just try placing a sheet of 6-sheet medium brood side by side with a sheet of 10-sheet light brood at the close of a honey flow and note the results. Light brood really deserves no place in the hive.

Speaking of "Fishin'"

Have you been fishing yet this summer? It made my mouth water to get a letter from Bert Woodman (the bee smoker man) telling of the fine string of trout he'd caught on "opening day" and home by nine o'clock. Made me feel restless. So on Memorial day, while Cale was feeding the bees (the ones I hanker to work with) I took my bamboo and hiked for the dear old Mississippi. A nice string of crappies was my reward. With friend wife and the kiddies we built a fire and—well, you know how a fish fry tastes on a warm summer evening on the edge of a lake. If the honey crop doesn't fail and the weather holds good, this man and his family are going to gypsy up into the North country late this summer. With a piece of canvas for cover and an old Dodge car for conveyance, we expect to "hit the highway" about August first. I don't know how you feel about it, my friend, but I think you will agree that eleven months of a year at a desk, for a 180-pound man who has been used to plenty of life in the open, is enough to entitle one to a real "fishin'" trip.

THIS IS THE 'SIGN' ON EACH CYPRESS BOARD

S C
No. of Mill
M A

TRADE MARK REG. U.S. PAT. OFFICE

DON'T GUESS MAKE SURE, "HAVE A LOOK"

For all uses that invite decay (for instance, bottoms) demand

"ALL-HEART"

"Tidewater" Cypress

"THE WOOD ETERNAL"

The "arrow" on the end of each board identifies the genuine product of the cypress mills whose CHARACTER of timber, methods of manufacture, and complete responsibility enable them to be members of the Association.

THIS FACT IS YOUR PROTECTION.

ACCEPT NONE BUT TRADE-MARKED "TIDEWATER" CYPRESS

CYPRESS DEFIES DECAY

CYPRESS LASTS PRACTICALLY FOREVER

SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION

1251 Poydras Building, New Orleans, La., or 1251 Graham Building, Jacksonville, Fla.

Insist on TRADE-MARKED Cypress at Your Local Lumber Dealer's — If he hasn't it, LET US KNOW

HONEY LABELS

The above cut shows a few samples of our fine honey labels printed in colors

Write today for package of sample labels with prices.

AMERICAN BEE JOURNAL, HAMILTON, ILLINOIS

LABELS

THE
BEST
HONEY LABELS
TO BE HAD
ANYWHERE

Write for 16-page Catalog Showing our Honey Labels in Color

Send for "How to Sell Honey" Booklet

THE A. I. ROOT COMPANY
WEST SIDE STATION
MEDINA, OHIO